

**Biological Opinion on the Effects of Issuing Recovery Permits  
Related to the Translocation of the Endangered Columbian White-  
tailed Deer from the Julia Butler Hansen National Wildlife Refuge  
to the Ridgefield National Wildlife Refuge and from Puget Island,  
Washington to Cottonwood Island, Washington.**

**(FWS Reference Number 01EOFW00-2013-F-0086)**

**Prepared by the Oregon Fish and Wildlife Office  
U.S. Fish and Wildlife Service  
Portland, Oregon**



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*Action  
for*

*January 23, 2013*

**Date**

## Introduction

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BiOp) based on our review of the proposed issuance of recovery permits under section 10(a)(1)(A) of the Endangered Species Act (ESA) that would: (1) authorize the Service's capture of the endangered Columbian white-tailed deer (*Odocoileus virginianus leucurus*) (CWTD) at the Julia Butler Hansen National Wildlife Refuge (JBH) and Puget Island, Washington for the purpose of relocating these individuals to the Ridgefield National Wildlife Refuge (Ridgefield) and Cottonwood Island, Washington; and (2) authorize take of the CWTD by harassment or capture associated with Animal Damage Management (ADM)-related actions likely to occur on non-Federal lands adjacent to Ridgefield and Cottonwood Island, Washington in response to the translocation action. These ADM actions would be carried out by USDA Wildlife Services (WS), the Washington Department of Fish and Wildlife (WDFW), and the Oregon Department of Fish and Wildlife (ODFW).

The proposed action analyzed in this BiOp was included in the Columbian White-tailed Deer Translocation Environmental Assessment (EA) finalized on January 22, 2013. The EA is incorporated here by reference. Though the EA was broader in scope, the analysis in this BiOp is focused on the effects of the issuance of the 10(a)(1)(A) permits. This BiOp was prepared in accordance with section 7 of the ESA (16 U.S.C. 1531 *et seq.*). The internal request for formal consultation was received by the Service's Oregon Fish and Wildlife Office (OFWO) from the Willapa National Wildlife Refuge Complex (WNWRC) on December 11, 2012. This Intra-Service BiOp is based on the following major sources of information: the final EA and its associated CWTD Capture Plan and CWTD Monitoring Plan; the December 11, 2012 Biological Assessment (BA) for the emergency translocation of CWTD from the JBH and Puget Island to Ridgefield and Cottonwood Island; the Recovery Plan for the CWTD (Service 1983); our files; and informal consultation involving the Service's WNWRC, Ridgefield, OFWO, Washington Fish and Wildlife Office (WFWO), Regional Office, and Solicitor staff.

## Consultation History

The original 10(a)(1)(A) recovery subpermit that covered previous CWTD translocation activities was issued to WNWRC on June 24, 2010. That subpermit expired on December 31, 2012. Numerous meetings and conference calls were conducted by WNWRC with other Federal, Tribal, and State partners regarding the 2013 proposed translocations beginning in December 2011 and continuing to the present. The WNWRC submitted a renewal application on August 14, 2012. The WNWRC released a draft EA on CWTD translocation activities on December 2, 2012 with a 30 day comment period. Formal consultation began on December 12, 2012 with the receipt of WNWRC's BA regarding the effects of the proposed translocation on CWTD and other listed species.

## Concurrences

### Water Howellia (*Howellia aquatilis*)

Water howellia is an annual that occurs in seasonally flooded wetlands or water bodies that provide little suitable forage or cover for CWTD. It is possible that CWTD could cause some injury or mortality by trampling plants while wading through ponds, especially during the flowering and seed-set periods. This impact would likely be localized and uncommon. A short period of time may occur when the pond dries and the plant is still succulent that some grazing may occur, but it would not be expected to affect the life cycle of the plant because any occurrence would likely be at very low intensity and would happen after seeding.

Therefore, we concur that the proposed action may affect, but is not likely to adversely affect Water howellia.

### Nelson's Checker-mallow (*Sidalcea nelsoniana*)

Nelson's checker-mallow occurs in many areas that currently support CWTD populations. The plant does not appear to be overused by CWTD at these locations therefore we would not expect overuse of Nelson's checker-mallow at Ridgefield by the translocated population. Ridgefield monitors the Nelson's checker-mallow sites several times a year and performs annual population censuses. If deer browsing is observed and appears to be impacting the survival of the plants, the Refuge may install fence to exclude deer from the planting sites. Therefore, we concur that the proposed action may affect, but is not likely to adversely affect Nelson's checker-mallow.

## BIOLOGICAL OPINION

On the issuance of section 10(a)(1)(A) permits to take Columbian white-tailed deer (deer) for the purposes of survival and recovery.

### 1.0 Description of the Proposed Action

The Service proposes to issue one section 10(a)(1)(A) recovery subpermit to capture and translocate CWTD and up to three permits to subsequently undertake ADM-related actions in response to the translocation action. These recovery permits would only cover the following actions and entities described in Section 1.1 and 1.2, and would only be viable for the following periods of time:

- Translocation subpermit- valid until December 31, 2014, with option to apply for renewal if necessary.
- ADM permit- valid for two years with option to apply for renewal as needed. The term will be limited so that renewal of the permit can incorporate new information relevant to an assessment of take likely to be caused by ADM actions.

### 1.1 Translocation of the CWTD

#### 1.1.1 Translocation Activities

The Service proposes to translocate up to 50 CWTD from the JBH Mainland Unit in Wahkiakum County, Washington to Ridgefield in Clark County, Washington, and up to 15 CWTD from Puget Island in Wahkiakum County, Washington to Cottonwood Island in Cowlitz County, Washington. The CWTD that are moved to Ridgefield will be released at up to three different sites, the Roth unit, the Carty unit, and the Bachelor Island unit. CWTD moved to Cottonwood Island would be let go at one designated release site.

Translocations will occur between January 15 and April 15, 2013, and perhaps in 2014. Although most of the translocations are likely to occur in 2013, additional translocation efforts to ensure the health and survival of the new Ridgefield herd may be conducted from 2014 through 2020. Translocations planned for any time after December 31, 2014, would require a renewal of the permit before any further translocation activities could take place. The analysis of translocation activities in this BiOp covers only the translocations that may occur under the term of the subpermit (through December 31, 2014).

For both translocations, the CWTD will be captured using a variety of techniques, starting with the least aggressive and moving to the more aggressive techniques only when necessary. The capture techniques are listed below, from the least aggressive (1) to the most aggressive (5):

(1) Drop netting:

Deer will be baited into the net site for one week prior to the intended capture date. Trail cameras will be used to determine if and when the deer approach the site. Personnel will be in place at least one hour prior to the expected arrival of the deer and positioned to be able to view the capture area. Night vision goggles will be used for work after sunset. The decision to drop the net will depend on how many deer are under the net and whether the entire family group can be captured. Personnel will be stationed close enough to the drop site to blindfold and restrain the deer within 60 seconds of capture. As soon as the net is dropped, personnel will move to the captured animals as quickly and quietly as possible and begin immobilization. The Service will employ three drop nets with silent releases and attempt at least two drops per week.

(2) Drive netting:

Drive netting will be done in areas of tree and shrub cover where deer tend to be located during the day. Ten to thirty people will be positioned in a line and will slowly push deer in one direction to the edge of the forested area. Positioned at the edge will be a large mesh net hung loosely from poles that will stretch the length of the capture area. On approach to the net, deer attempt to get through it as they would dense shrubs. They become entangled and the net falls off the support to fully restrain the animal. The process is silent and the deer are immediately blindfolded and restrained. Net tenders will be stationed at either end of the net to respond quickly to captured deer. Upon approach, handlers will begin immobilization procedures.

(3) Darting:

All accessible roads will be driven at 10 to 15 miles per hour beginning at sunrise, and deer within range of the road will be darted from the vehicle. Deer will be darted with a Pneu-Dart. Adult bucks, spike bucks that are not part of a family group, and single does will be targeted. In the case of a single doe, the area will be scanned prior to darting to look for an associated fawn or yearling. Bait stations that are part of the drop-netting effort will be avoided to prevent affecting that portion of the project. The deer will be placed on a dry nylon tarp, and a thermometer will be inserted into the anus to monitor body temperature. A sterile lubricating solution will be placed on the eyes, and a blindfold will be fitted. The dart will be removed and the dart wound will be sterilized. The deer will be moved into a specially designed moving crate, placed in sternal recumbency and monitored until 45 to 60 minutes post sedation. At that time the Xylazine will be reversed with administration of Tolazoline, and the deer will be transported to the release site.

(4) Helicopter drive netting:

This technique is the same as the ground drive netting described above except that deer are pushed with a helicopter rather than a group of people on the ground. The helicopter hovers above an area, sweeping back and forth slowly working toward the net. Enough distance is kept to ease the deer forward without creating

a charge toward the net. An Aerial Capture, Eradication, and Tagging of Animals (ACETA)-carded pilot, with proven experience using this technique in deer, will be used. The noise of helicopters can cause stress in animals, therefore deer will be immediately sedated using an intramuscular injection of Azaperone (0.5–2.0 mg/kg) and midazolam (0.1–0.5 mg/kg).

(5) Helicopter net gunning:

Deer are approached with a helicopter and a net is projected over the deer. Two handlers are immediately dropped off near the deer and the deer is sedated. Upon approach the deer is immediately blindfolded and given an intramuscular injection of azaperone (0.5–2.0 mg/kg) and midazolam (0.1–0.5 mg/kg) before the deer is removed from the net. To keep capture mortality to a minimum, only experienced ACETA-carded operators will be used and chase times will be kept under 60 seconds. The deer will be immobilized and transferred to a central processing area for collaring and transport preparation.

In general, attempts will be made to capture family groups and release them together. Attempts will be made to have at least two handlers for each deer, with at least one handler at each deer that is experienced in wildlife capture. Deer will be blindfolded immediately. The deer will be hobbled front leg to back leg and placed on a dry nylon tarp. These actions will minimize sensory input, struggling, and stress. Noise and touching of deer beyond what is necessary to restrain it will be minimized. A thermometer will be inserted into the anus to monitor body temperature. Ice and ice packs will be placed on the inside of the legs and the chest if temperatures rise above 104° F. Supplements will be administered. Adult CWTD will be equipped with radio collars that are wrapped with reflective tape. All deer will be equipped with ear tags: yellow ear tags will be used for Ridgefield and white ear tags will be used for Cottonwood Island. Blood samples will be taken and some of the deer will be weighed with a spring scale. Chemical immobilization and sedation may be employed as required by a certified wildlife veterinarian who will be responsible for selecting the appropriate agents and doses. Deer will be placed in a specially designed moving crate where the blindfolds and hobbles will be removed prior to transport.

All deer will be transported by vehicle. Crates containing individual deer will be loaded onto pickups or suspension trailers and strapped securely. Deer being released at Ridgefield will be driven, and in some cases also boated, to the release location. Expected transport time is 1.5 to 2 hours. Deer released on Cottonwood Island will be driven to the Kalama marina and loaded onto a flat-decked boat. These crates will be transported to the island by boat and walked 25 to 100 meters inland before being released. Expected transport time is 1 to 1.5 hours. At no time will Oregon boat launches be utilized and no deer will be transported at any time into Oregon. The Service has conducted similar activities on the CWTD in the past; that experience will serve to minimize the adverse effects of all of these activities on the CWTD.

At the release site, deer that are not sedated will be released from the crates simply by opening the crate door and allowing the animal to leave. Deer that have been sedated

will be released into a temporary shelter (boma). Bomas will be made with loosely hung burlap to create a visual barrier and allow the deer a safe place to recover. Deer will be monitored until the effects of the drugs wear off, at which time the boma will be opened and the deer allowed to leave. The application of sedatives and adjustment of dosages will be at the discretion of the attending veterinarian. A medical and surgical kit including oxygen will be accessible during all captures. During translocation activities, should a deer be injured to the extent that it cannot be treated at the scene and released, it would be euthanized by lethal injection. The carcass would be necropsied to provide information on the nutritional status and parasite loads of the population.

Capture and translocation of the CWTD at JBH would occur up to four days per week as necessary in 2013. If ground-capture methods at JBH have not captured at least 25 CWTD by February 22, 2013, the Service would conduct one day of helicopter-capture and transport after March 1, 2013. Helicopter capture has the advantage of being able to remove CWTD from inaccessible areas of JBH Mainland and being highly effective, but this technique has led to increased capture mortality of the CWTD in the past.

Monitoring of the radio-tagged translocated CWTD would occur three times per week for the first month post-release, at least once per week for the next 5 months, two to four times per month for the next 6 months, and at least once per month up to five years post-release as funding permits. Locations would be plotted to monitor home range and movements. Deer that are found to have died would be promptly recovered and necropsied.

### **1.1.2 10(a)(1)(A) Recovery Subpermit for Translocation**

The 10(a)(1)(A) Recovery Subpermit to Take the Columbian White-tailed Deer (*Odocoileus virginianus leucurus*) (Amendment -10 under Regional Blanket Permit TE-702631) is incorporated here by reference. The recovery subpermit, issued to Willapa National Wildlife Refuge Complex for translocation activities, authorizes the take (harassment, capture, tranquilizer-dart, sedate captured individuals, attach radio transmitters, draw blood samples, translocate, and release) of no more than 120 CWTD during the 2013 proposed translocation of CWTD from JBH to Ridgefield, and from Puget Island, WA, to Cottonwood Island, WA, and during monitoring activities as specified in the subpermittee's August 14, 2012 renewal request, and in accordance with the Special Terms and Conditions in the subpermit.

## **1.2 Animal Damage Management near the Ridgefield Translocation Area**

In addition to the translocation effort, the Service also proposes to permit ADM activities in Oregon and Washington on lands adjacent to Ridgefield where landowners may incur damage to crops or other property caused by the translocated CWTD. ADM activities will not be carried out directly by the Service, but by WS, WDFW, and ODFW (hereafter referred to as ADM staff).

### 1.2.1 ADM Plan

ADM activities will focus on preventative measures first, followed by corrective measures only when necessary. Use of these measures will follow a protocol from least intrusive to most intrusive with respect to the CWTD. Effectiveness of these measures will vary due to crop or garden location, type and value; seasonal periods; land ownership; topography; and other site-specific factors. Preventative measures consist of outreach, education and advice, and barriers. Corrective measures include (1) the use of special equipment such as repellents, hazing, barriers, and the planting of unpalatable or noxious plants to facilitate avoidance of adjacent lands by the translocated CWTD; and (2) capture and relocation. No direct lethal control of the CWTD will be authorized under the proposed recovery permits. The above preventative and corrective measures are further discussed below.

#### a. Outreach

Prior to initiating CWTD translocation efforts, the Service will meet with interested parties including landowners adjacent to Ridgefield, landowners on Sauvie Island (Oregon), other local residents, and elected officials. Efforts will be made to meet directly with larger landowners and commercial interests, and visits will be made to these properties. This outreach will place an emphasis on the fact that black-tailed deer (*Odocoileus hemionus columbianus*; BTD) already exist in the area (and are the subject of ADM), and that CWTD are expected to behave in a similar manner. The major difference in ADM for these two deer species will be that lethal control of the CWTD will not be authorized.

Potentially affected landowners will be given advice on physical deterrents, such as fencing, liquid deterrents, and noisemakers. Landowners will be given instructions on how to identify CWTD and BTD and they will be informed that any CWTD-related complaints should be directed to a centralized point-of-contact that will be established by the Service on a State-by-State basis in coordination with ADM staff.

Efforts will be made to educate hunters and private landowners who have been issued state permits to control BTD damage on their property about the presence of CWTD and the need to avoid take of the CWTD in the form of hunt, shoot, wound, kill, trap, or to attempt to engage in such conduct. Hunter and landowner education shall include the development of pamphlets and web-based sources of information describing the translocation program, and the identification of BTD and CWTD. Public outreach shall also include hunter and landowner education meetings, postings of signs at appropriate locations that provide information on the CWTD and its conservation, and the publication of CWTD-related information in state game regulations.

#### b. Education and Advice

After outreach has occurred and CWTD have been translocated to Ridgefield, ADM issues will be handled on a case-by-case basis by ADM staff. When a complaint occurs, ADM staff will determine whether a site visit is appropriate. If CWTD-caused damage is confirmed, through a series of questions and answers it will be determined whether simple deterrence

can be implemented to adequately address the situation. Deterrence most often will include the use of habitat modification, physical fencing, or liquid deterrents. Several manufacturers of inexpensive plastic deer fence exist, and these sources of fencing will be shared with the affected property owner. Information on electrical fencing and liquid deterrents will also be discussed with the affected landowner. Other deterrents that may be suggested include the planting of unpalatable or noxious plants, electronic deer repellents, ultrasonic devices, and flagging.

c. Use of Special Equipment

If the deterrence measures described above are not effective, further management action may be required. In many cases, the use of specialized equipment such as propane cannons, ultrasonic noisemakers, and electronic deterrents can be implemented. To be effective, use of such equipment must be carried out by personnel trained in the use of these deterrents. The effectiveness of these deterrents should be monitored and reported to ADM staff.

d. Capture and Relocation

In cases where extensive crop damage occurs, especially commercial damage, and deterrents are ineffective or infeasible, it may be necessary for ADM staff to capture and relocate problem animals. In those cases, CWTD will be either baited into drop nets or darted and removed from the area to a more remote, historic range location by ADM staff. Such relocation is subject to permitting by the States of Oregon and Washington.

e. Non-Damage-related Animal Management

Situations could arise in which a CWTD may be injured, sick, or pose a public safety concern. In these situations, authorized ADM staff would be permitted to aid the animal to the extent necessary to ensure the safety of the animal, to address any injuries, and/or to remove the public safety hazard. Where applicable, management measures would follow those outlined above for ADM. The Service, in coordination with ADM staff, will determine the most appropriate recourse in dealing with each affected CWTD.

### **1.2.2 10(a)(1)(A) Recovery Permit for ADM**

The 10(a)(1)(A) recovery permits that will be issued to WS, WDFW, and ODFW for ADM activities, will authorize the direct take (capture, tranquilizer-dart, sedate captured individuals, translocate, and release) of no more than five CWTD per year during ADM as specified in the permittee's request, and in accordance with the Special Terms and Conditions in the permits.

## **2.0 Action Area**

The action area for the translocation is comprised of the following locations: the JBH Mainland Unit in Cathlamet, Washington; Puget Island, Washington; Cottonwood Island, Washington; and Ridgefield Refuge in Ridgefield, Washington. The JBH Mainland Unit located in Wakahikum County, Washington, consists of about 2,000 acres of lowland habitat

typified by mixed deciduous vegetation, wetlands, and reed canary grass. Puget Island, Washington, located in Wakahkum County, just upstream from JBH in the Columbia River, is a roughly 5000-acre area that consists of Puget and Little Island. Most of the island is privately owned by a large number of small landowners and local agricultural interests include cattle and goat grazing and cottonwood farming. Ridgefield Refuge is located in Clark, County Washington, approximately 67 miles southeast of JBH and is comprised of 5,218 acres of marshes, grasslands and woodlands with about 3,800 acres of terrestrial habitat. Finally, Cottonwood Island is located in Cowlitz County, Washington, upstream from Puget Island near the town of Longview, and consists of about 1,000 acres with large tracts of sand or sand covered by a thin layer of moss and lichen. The island is uninhabited by humans and is largely a dredge material site but does have public access for camping and recreation.

The action area for ADM includes the following: (1) the local area surrounding Ridgefield Refuge in Clark County, Washington; (2) Sauvie Island in Multnomah and Columbia counties in Oregon; and (3) the city of Scappoose in Columbia County, Oregon. These areas include a mix of private and public lands. Land use in the area includes residential, agricultural, commercial, and recreational purposes.

### **3.0 Analytical Framework for the Jeopardy Determination**

In accordance with policy and regulation, the jeopardy analysis in this BiOp relies on four components: (1) the Status of the Species, which evaluates the species range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with section 7 regulations and policy, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the species current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of the survival and recovery of the species in the wild. The jeopardy analysis in this BiOp places an emphasis on consideration of the range-wide survival and recovery needs of the species and the role of the action area in the survival and recovery of the species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

## 4.0 Status/Environmental Baseline of the Columbian White-tailed Deer

### 4.1 Listing Status

The CWTD was listed as endangered on March 11, 1967 (32 FR 4001). In 2003, the *leucurus* subspecies was separated into two separate distinct population segments (DPSs) on the basis of demographic and genetic dissimilarities: the Douglas County DPS (near Roseburg, OR) and the Columbia River DPS. As a result of recovery efforts, the Douglas County DPS grew to over 6,000 animals and was delisted in 2003, while the status of the Columbia River DPS was left unchanged (68 FR 43647–43659). The Columbia River DPS continues to be classified as endangered under the ESA. To date, no critical habitat has been designated for the CWTD. In 1972, JBH was established (then called the Columbian White-tailed Deer NWR) to protect over 5,600 acres of shoreline and island habitat for the conservation of the CWTD. The CWTD Recovery Plan was prepared in 1976 and updated in 1983 (Service 1983).

### 4.2 Life History and Habitat

The following discussion is primarily based on information presented in the CWTD Recovery Plan (Service 1983).

The CWTD is the western-most of the 38 subspecies of *Odocoileus virginianus*, the white-tailed deer. The CWTD typically inhabits forested areas along waterways and generally selects areas that offer both food and cover. Areas forested with Sitka spruce (*Picea sitchensis*) and a grass understory are used most frequently; however, in the summer CWTD preferentially inhabit mixed forests of western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), and parkland habitat with a grassy understory. CWTD density has been shown to be greatest in areas where woodland cover was around 50 percent. However, the CWTD can thrive in areas with various ratios of canopy cover. The most important aspect of habitat appears to be the available food supply within or close to escape cover. While the CWTD frequents bottomlands, its local distribution is not limited by elevation if other suitable habitat characteristics are present (Service 1983).

Foraging habitat used by the CWTD is generally located within 820 feet of forest cover and varies greatly with the season. The CWTD is a generalist in diet, utilizing both forage and browse. Typical forage includes evergreen blackberry (*Rubus laciniatus*), Pacific ninebark (*Physocarpus capitatus*), red-osier dogwood (*Cornus sericea*), salal (*Gaultheria shallon*), western red cedar, foxtail (*Alopecurus*), orchard grass (*Dactylis glomerata*), reed canary grass (*Phalaris arundinaceae* L.), tall fescue (*Festuca arundinaceae*), manna grass (*Glyceria*), yarrow (*Achillea millefolium*), red clover (*Trifolium pretense*), and buttercup (*Ranunculus repens*) and typical browse includes evergreen blackberry, Pacific ninebark, red-osier dogwood, salal, western red cedar. Twenty five to fifty percent of the CWTD's diet can be composed of woody browse species. CWTD consumption of browse species increases in the fall, while grasses and

forbs are the most important food items in the spring and summer. Annually, the diet of the CWTD on the JBH consists of roughly one third browse, one third grasses, and one third forbs. However, no single food type is exclusively consumed even when abundant, suggesting that the CWTD prefers or requires a variety of food items at all times of the year. Optimum CWTD habitat will contain a variety of food types that are abundant at different times of year (Meyers 2009).

The CWTD is particularly susceptible to disturbance during the fawning (breeding) season. During the rutting (mating) season, bucks may expend large amounts of energy (Meyers 2010a). The rutting season for the CWTD can extend from early October to late December. CWTD fawning begins in early June and ends in mid- to late July. Peak fawning occurs in mid- to late June. Habitats used for fawning include tall grass fields and other habitats that provide thermal and hiding cover and are located away from other CWTD. Within the Columbia River region, female CWTD often select closed canopy habitats, including poplar (*Populus*) plantations and dense coniferous forests as fawning sites. After giving birth, the female displays normal activities, returning several times a day to nurse the newborn fawns. Young fawns generally rest or hide during the day in or near the location where they were born. Fawns typically are weaned and become relatively independent after 10 weeks, although some may continue nursing into the fall (Service 1983).

### **4.3 Population Trends and Distribution**

CWTD generally distribute across the landscape and do not herd, but their home ranges often overlap (Meyers 2010b). Individual CWTD home range densities are limited to 0.1-1.2 per square mi (female) to 0.4-1.2 per square mi (male) (Gavin et al. 1984). The density of CWTD in a given habitat can range from 25 to 75 CWTD per square mi, and is very habitat dependent, with higher quality suitable habitats supporting a higher density of CWTD than lower quality suitable habitats. Biologists at the JBH have found that the ideal density for the CWTD on the refuge is approximately 40 deer per square mile in high quality habitat (Meyers 2010b). Adult CWTD are not migratory and their home ranges tend to be very stable in space and time (WDFW 2004). Yearling bucks, however, are much more likely to migrate, often moving in the fall around the rutting season while looking for a CWTD population with less competition (Meyers 2010a). CWTD move between the five subpopulations by swimming. This type of movement promotes gene flow between the subpopulations and is, therefore, an important facilitator of genetic mixing (Meyers 2010a).

The historic distribution of the CWTD extended west from the Cascade foothills in the Willamette Valley of Oregon to the coast, and north from Roseburg, Oregon to south of the Puget Sound in Washington (Service 1983). The Columbia River DPS of the CWTD is currently estimated to contain about 600 individuals occurring along the lower Columbia River in Wahkiakum and Cowlitz counties, Washington and Clatsop and Columbia counties, Oregon.

CWTD within the Columbia River DPS are distributed in five subpopulations: the JBH Mainland Unit, Tenasillahe Island, Puget Island, Wallace Is/Westport, and the Upper Estuary Islands subpopulations. Because deer will disperse beyond home ranges, CWTD may be found outside of the geographical boundaries of these five subpopulations but the five subpopulations represent the substantive population groups within the Columbia River DPS. Each of the five subpopulations is geographically separated by major channels of the Columbia River. Table 2 summarizes information on CWTD population estimates within the five subpopulations from 1984 to 2011.

Table 2. Population estimate of the Columbia River DPS of the CWTD by subpopulation.

Year	JBH Mainland Unit	Tenasillahe Island	Puget Island	Wallace Is/Westport	Upper Estuary Islands <sup>d</sup>	Total
1984	360	40	170	150	0	720
1985	480	40	215	125	0	860
1986	500	55	195	125	0	875
1987	500	70	185	150	0	905
1988	410	80	205	150	0	845
1989	375	90	205	150	0	820
1990	345	105	200	150	0	800
1991	280	130	200	150	0	760
1992	280	165	200	175	0	820
1993	175	195	200	200	0	770
1994	140	205	200	225	0	770
1995	120	205	200	225	0	750
1996	60	125	200	225	0	610
1997	100	150	200	200	0	650
1998	110	200	200	200	0	710
1999	110	160	150	140	25	585
2000	120	135	150	150	55	610
2001	120	135	125	150	55	585
2002	125	100	125	140	55	545
2003	115	100	125	140	80	560
2004	110	100	110	140	95	555
2005	100	100	125	140	100	565
2006 <sup>a</sup>	81	86	na	104	37	
2007	59	82	na	19 <sup>c</sup>	41	
2009	74 <sup>b</sup>	97 <sup>b</sup>	138	146	44	593 <sup>e</sup>
2010	68	143	na	163	39	630 <sup>e</sup>
2011	83	90	171	na	28	603 <sup>e</sup>

<sup>a</sup>Estimates from 2006 – 2010 are derived from FLIR survey results. Survey results from 2008 produced anomalous data not considered representative of actual numbers, and are thus not included in this table.  
<sup>b</sup>Numbers reflect a post-survey translocation of 16 deer from Tenasillahe Island to the Refuge mainland.  
<sup>c</sup>Does not include Westport, OR mainland in estimate.  
<sup>d</sup>Includes Lord, Walker, Fisher, Hump and Crims islands. (Source: USFWS)  
<sup>e</sup>Includes estimates from residual populations in Clatskanie Flats, Brownsmead, Willow Grove and Barlow Point.  
Note: Totals are not given in 2006 and 2007 due to incomplete data.

The JBH Mainland Unit supports a CWTD subpopulation that totaled 83 individuals in 2011. The site consists of about 2,000 acres of lowland habitat containing of a mosaic of forest and meadow typified by mixed deciduous vegetation, wetlands, and reed canary grass.

About 200 acres are tilled and planted with pasture grasses and forbs on a 4-year rotation. Another 600 acres are under cattle grazing through management with cooperative farmers. Grazing from April through October is used to control reed canary grass and encourage the growth of understory forbs. About 50 acres of pasture are mowed each year during late summer to encourage forb growth, and another 105 acres of ephemeral wetlands are managed through water control structures.

Puget Island currently supports approximately 171 deer. This island contains a mix of cottonwood hybrid plantations, dairy pastures, and a growing residential population. Tree plantations on the island provide food and shelter and enhanced predator control for the deer and the CWTD population on the island has remained quite stable over the past 37 years (170 deer in 1984, 171 deer in 2011). The Puget Island subpopulation has consistently recruited a higher annual fawn population than each of the four main subpopulations. Several factors may contribute to the higher than average fawn recruitment and overall robust deer population on Puget Island, including coyote control, availability of quality forage, and a larger local range protected from flooding (USFWS 2008).

Cottonwood Island is part of the Upper Estuary Islands subpopulation that had a total population of 28 CWTD in 2011. The subpopulation is located in Cowlitz County, Washington and Columbia County, Oregon. In addition to Cottonwood Island, this subpopulation includes CWTD on Lord, Walker, Fisher, Hump, Crims islands. The CWTD Recovery Plan identified each of these islands as potential translocation sites due to their habitat and forage suitability (USFWS 1983). Lord, Walker, Fisher and Hump islands together provide 934 ac (378 ha) of deer habitat and are under a mix of private and public ownership (USFWS 2005). Additionally, approximately two thirds of Crims Island was secured through an agreement between the Bonneville Power Administration, the Columbia Land Trust, and the USFWS. In 1999, 2000, and 2006, a total of 61 deer were relocated to Crims Island. Results from winter FLIR surveys indicated the presence of 32 deer on the island in 2010 and 18 deer in 2011 (USFWS 2011). Most recently, the 650-ac (263-ha) Cottonwood Island was secured through an agreement with the owners (a coalition of several ports and the Army Corps of Engineers). Fifteen deer were moved to Cottonwood Island in the fall of 2010 but seven of these were subsequently killed in vehicle collisions. The Cowlitz Tribe conducts periodic monitoring of deer on Cottonwood Island.

The remaining two subpopulations, Tenasillahe Island and Wallace Island/Westport, have maintained large stable numbers of CWTD for many years. The Tenasillahe subpopulation totaled 90 individuals in 2011. This island is part of the JBH Refuge, and is located in Clatsop County, Oregon just across the Columbia River from the Mainland Unit. The island provides secure habitat for a large herd of CWTD. The Wallace Island/Westport subpopulation is located in Columbia County, Oregon just upstream from JBH on the Oregon side of the Columbia River and is mainly under private ownership. This subpopulation totaled 163 individuals in 2010. Both the Tenasillahe Island and Wallace Island/Westport locations provide high quality, suitable habitat for CWTD.

## **4.4 Threats/Reasons for Listing**

The CWTD was extirpated throughout most of its historic range by 1900. The main factor in its decline was human-caused habitat modification from clearing of wooded land for agriculture, the draining of beaver ponds, dike building and channelization of water, fire suppression, and the introduction of non-native plant species. Unregulated hunting of the CWTD also likely played a role in its decline. Potential threats to the CWTD outlined in the Recovery Plan include continued degradation of CWTD habitats through habitat removal, alteration and development, vehicle collisions, and predation. Additional threats include flooding and the spread of invasive plants that reduce food availability (Service 1983).

## **4.5 Survival and Recovery Needs**

As mentioned above, the most important requirements for the survival of the CWTD appear to be an adequate quantity and quality of habitat with an adequately available food supply within or close to escape cover, and habitat free from disturbance during the fawning (breeding) season. According to the Recovery Plan for the CWTD (Service 1983), full recovery of the species to a condition where delisting of the DPS would be warranted would occur when a minimum of 400 CWTD are distributed in suitable, secure habitat in at least three viable subpopulations. Habitat is considered secure according to Recovery Plan criteria only when it is free from adverse human activities in the foreseeable future and relatively safe from natural phenomena that would destroy its value to CWTD (e.g., areas prone to flooding). The Recovery Plan indicates that, for a CWTD subpopulation to be classified as viable, the minimum population size of that subpopulation must remain above 50 deer (in November) in secure habitat.

The total population of the Columbia River DPS of the CWTD is currently estimated at about 600 animals. Two subpopulations have met the definition of secure and viable, the JBH Mainland Unit subpopulation and the Tenasillahe Island subpopulation (Service 2012a). The Puget Island and Wallace Island/Westport subpopulations have maintained consistently robust abundance even though the locations do not have the same measure of habitat security as the refuge locations.

Recovery goals listed in the Recovery Plan for the CWTD (Service 1983) include ensuring the viability of each subpopulation and securing the habitat of extant subpopulations of the CWTD. Quality of habitat is a limiting factor on CWTD subpopulations. The deer that are located in higher quality habitat have consistently higher population rates (Puget Island and Wallace Island/Westport). Future recovery efforts must focus on securing high quality upland habitat for the species.

## **4.6 Habitat status at Ridgefield and Cottonwood**

Ridgefield is separated into five units, including the Carty and Roth units where the two release sites are located. The Carty Unit supports mixed deciduous habitat with oak savannah comprising a large portion of the unit. The area contains some areas of moderate to

sparse reed canary grass, with upland meadows supporting a variety of grasses and forbs. This area also contains large areas of dry soils above the normal flood level. The Roth unit represents more of a parkland mosaic, with dense deciduous tree stands and open meadows. The topography within this unit consists of fingers of high ground separated by swales. The three remaining units (Bachelor Island, River S, and Ridgeport Dairy) all contain large areas of low-lying meadow or seasonally-flooded wetlands with pockets of woody cover. Most of the open areas in the River S and Bachelor Island units consist of low-lying meadows and wetlands (see Service 2011 for more information on Ridgefield). Under the proposed action, CWTD will be released in the Roth and Carty units but some CWTD are expected to move into the other units in low numbers.

The vegetated area on Cottonwood Island consists of deciduous trees and shrubs (mainly cottonwood, willow, and scotch broom). The U.S. Army Corps of Engineers recently planted about 50 acres of shrubs for CWTD habitat enhancement, and planted about 16 acres of CWTD forage plants. Public access is allowed on the island for recreational camping, hunting, and fishing.

## **5.0 Effects of the Proposed Action**

### **5.1 Effects of Translocation**

#### **5.1.1 Beneficial Effects**

Due to Federal management of the release site at Ridgefield the translocation of CWTD from the JBH Mainland Unit is expected to result in the establishment of a new secure CWTD sub-population at Ridgefield. The translocation of CWTD from Puget Island is expected to result in a long-term increase in the number of CWTD on Cottonwood Island and therefore increase the viability of Cottonwood's herd. If the habitat on JBH remains secure the CWTD remaining on the Mainland Unit would be expected to re-populate that area and re-establish a sub-population similar in size to the current sub-population at this site. This effect would result in six sub-populations of the CWTD within its range, with three subpopulations in secure habitat.

#### **5.1.2 Adverse Effects**

All of the CWTD that the Service attempts to capture or succeeds in capturing will be adversely affected by harassment. The Service anticipates that a range of CWTD adverse responses would occur due to the stress of capture attempts and the stress of release to an unfamiliar location. Geist (1978) explained that disturbance is of special concern to ruminant wildlife (including deer), which exhibit a relatively low average intake of food (energy). Geist (1978) also indicated an animal's response to disturbance requires up to twice the amount of stored energy in the individual animal as required when maintaining a non-excited state. This reaction may not be externally observable when the skeletal muscles remain rigid and the animal doesn't move. Additional energy is expended each time the disturbance is strong enough to cause the animal to move away from the disturbance. The total cost to the individual from a disturbance includes any distance and elevation traveled to escape the disturbance, the metabolic cost of excitement (both before and after any travel), and any food intake opportunities lost as a result of the disturbance. If a disturbance occurs on a frequent basis leading to repeated episodes of

excitement, it will lead to the depletion of necessary energy and nutrients, even if the disturbance is not severe enough to cause the deer to be displaced. Although intense, the harassment of CWTD caused by the proposed translocation is likely to be of short duration.

All of the up to 65 CWTD authorized to be captured are likely to be adversely affected in the form of harassment through significant disruption in behavior and stress. However, deer that are not captured may also be disturbed and harassed. Based on past capture and translocation efforts involving the CWTD, and given the intense nature and duration of the capture effort that will take place on JBH, we can anticipate that the entire JBH Mainland Unit subpopulation (90 CWTD) is likely to experience disrupted behavior and stress even though only up to 50 animals will be captured and translocated from that location. On Puget Island the capture effort will be less intensive and smaller in scope, so no more than 15 CWTD in addition to the 15 individuals that are translocated from that location will experience disruption and stress. Therefore, the Service anticipates that a total of 120 CWTD (90 deer on JBH and 30 deer on Puget Island) will be adversely affected in the form of harassment through disruption of behavior and stress from the proposed translocation activities.

The level of deer mortality caused by capture varies by technique, location, and year. White and Bartmann (1994) documented 2-week mortality of 5 and 11 percent for net-gunning and drop-netting, respectively, for mule deer (*Odocoileus hemionus*) fawns. This can be considered capture-related mortality as opposed to longer term overall mortality. Sullivan et al. (1991) reported a drive-netting mortality rate of 0.9 percent, compared to 23.5 percent for rocket-netting and 16.2 percent for corral trapping of mule deer. DeYoung (1988) reported a capture mortality rate for net-gunning of 2.4 percent for mule deer.

With respect to CWTD captures in the lower Columbia River area, ground capture techniques (drop-netting, drive-netting, and darting) have averaged 4.5 percent capture-related mortality for 6 translocation efforts (Service 2012b). CWTD capture-related mortality associated with helicopter net-gunning has averaged 12.3 percent for 4 efforts, and 29.8 percent for two other net-gunning actions (17.6 percent capture-related mortality for all net-gunning actions combined).

The Service expects to capture 75 percent of the CWTD at the JBH Mainland Unit with ground capture techniques and 25 percent of the deer using helicopter net-gunning. If a 4.5 percent mortality rate for ground capture and 17.6 percent for helicopter net-gunning is assumed, a capture mortality rate of about 6 CWTD in 65 would be anticipated although the actual capture-related mortality is expected to be less than this figure because the captured deer will be sedated prior to transport for this effort.

Post-release mortality is less understood. Because captured CWTD are given antibiotics and supplements, they often have better survival than resident CWTD. But that can be offset by mortality resulting from unfamiliar surroundings (e.g., vehicle strikes or poor nutrition) and injury sustained during translocation. Clark (Service 1988) translocated 64

CWTD from Puget Island in 1986-88 and found no higher mortality than the baseline rate of resident CWTD (Service 2005). However, post-release mortality can vary widely due to deer condition and factors at the release site. Jones and Witham (1990) summarized mortality in 10 deer translocation efforts, showing overall mortality rates (4-16 months) of hunted populations from 25 to 85 percent. Natural mortality varies widely depending on year and area. Deer in Llano County, TX experienced 4 to 52 percent natural annual mortality (not including hunting) over 6 years (Teer 1984). This would equate to between approximately 3 and 33 CWTD of the 65 proposed for translocation.

Overall mortality for CWTD translocations has been approximately 22 percent for 12 efforts from 1986 to 2010 (Service 2012c). However these translocations included efforts to move CWTD from Roseburg, Oregon to JBH, a distance of approximately 250 miles, almost five times longer than the distance from JBH to Ridgefield. Habitat conditions at some of the release sites for these translocations were also not as suitable to CWTD compared with current habitat conditions on Ridgefield and Cottonwood Island. Furthermore, current habitat conditions at the JBH and Puget Island are good, so good physical condition of the deer before capture is expected. Reconnaissance of the release site at Ridgefield by CWTD experts suggests moderate to good habitat quality and a safe distance from major highways (Service 2012c). Therefore, we anticipate overall mortality from the proposed action to be lower than 22 percent, or less than 14 CWTD.

Based on past capture and translocation efforts involving the CWTD, we anticipate that the number of CWTD injured or killed due to translocation related activities, both during translocation and post translocation, to be between 6 and 14 individuals. Therefore the Services estimates that 10 individuals of the 65 deer captured will be adversely affected through injury and mortality as a result of the proposed translocation. CWTD would also be expected to experience indirect effects from stress and overheating during capture and transport, which could reduce post-release survival or result in abortions of fetuses in pregnant females. These effects may be minimized through the administration of sedatives prior to transport.

## **5.2 Effects of Animal Damage Management**

Adverse effects to the CWTD are likely to be caused by the ADM program. A small number (up to five per year) of CWTD are anticipated to move off of Ridgefield onto surrounding private land or swim across the Columbia River onto Sauvie Island or elsewhere in Oregon following the translocation. If these deer cause damage to private property, ADM may be implemented by ADM staff. Among other tools, ADM will include hazing, capture and relocation. These activities will adversely affect individual deer in the form of harassment due to hazing activities and potential injury or mortality caused by capture and relocation, and result in impacts quite similar to those detailed above in the *Effects of Translocation* section.

Some of these individual deer will respond quickly to hazing and will not need to be relocated. However, some individuals will not alter their behavior as a result of hazing and will therefore need to be subjected to potential adverse effects from capture and relocation.

In addition to the harassment related to capturing these deer, the capture/relocation process may lead to adverse effects in the form of injury, mortality or related post-release mortality of affected CWTD.

As discussed in the Section 4.3, adult CWTD are not migratory and their home ranges tend to be very stable in space and time (WDFW 2004), though yearling bucks are much more likely to migrate and often move in the fall (Meyers 2010a). Furthermore, the density of CWTD is very habitat dependent, with higher quality suitable habitats supporting a higher density of CWTD than lower quality suitable habitats. Because available CWTD habitat on Ridgefield is of more abundant and of higher quality than that of JBH, it is anticipated that very few translocated CWTD will move off the refuge after establishing a home range in Ridgefield's habitat. As the new subpopulation becomes established, we anticipate a minor amount of CWTD movement off Ridgefield over time (up to five per year) as yearling bucks migrate. ADM may need to be conducted on these individuals if they cause damage to private property. For purposes of this analysis, the Service estimates that all of these five individuals per year would be adversely affected in the form of harassment through ADM activities. Based on the effects analysis of translocation activities in Section 5.1, if three of these five individuals per year that are subject to ADM need to be relocated, we would anticipate a maximum rate of injury or death due to adverse effects from capture and translocation to be less than 22 percent or approximately one CTWD per year.

Any CWTD translocated to Ridgefield that swim across the Columbia River and are found on the ODFW Sauvie Island Wildlife Area (SIWA) would typically not be subjected to an ADM program. However, there could be conflicts with the big game hunting program on SIWA due to the risk of an accidental shooting of CWTD by an otherwise lawful hunter pursuing BTD. If CWTD were identified as being present on SIWA, staff would need to inform hunters on SIWA of the presence of these protected deer through signs, handouts, flyers, etc. at the Wildlife Area and the prohibition against the taking of the CWTD. It might also be necessary to publicize this situation in the Oregon Big Game Regulations if the presence of CWTD continues at this location over time.

### 5.3 Summary of Adverse Effects of the Action

Table 3. Summary of adverse effects likely to be caused by the proposed action.

Activity	Effect	No. of Affected CWTD
Capture/Transport/Release	Disturbance/Stress	120
Capture/Transport/Release	Injury/Mortality	10
ADM	Disturbance/Stress	5/year
ADM	Capture and Relocation-related /Injury/Mortality	1/year

## **5.4 Effects of the Action on the Survival and Recovery of the CWTD**

If the translocation to Ridgefield is successful, the translocated deer will form a sustainable subpopulation on secure habitat. From a recovery standpoint, this nascent subpopulation would offset the temporary decrease of the JBH Mainland Unit subpopulation. If the habitat at JBH remains secure, the number of remaining deer at the Mainland Unit would eventually recover back to current levels. This would result in an additional secure subpopulation and a significant advancement in the conservation of this species. Removal of 15 deer from the Puget Island subpopulation would not adversely affect the viability of the unit, as it has consistently been the largest subpopulation and could readily recover from the loss of 15 individuals. In 1986-1988, 59 deer were removed from an estimated population of 215 deer on Puget Island. Deer numbers were temporarily reduced in 1987, but had increased to 205 by 1988. The addition of 15 CWTD to the Cottonwood location would not only help sustain that herd, it would also enhance the genetic diversity of the Upper Estuary subpopulation, and thereby strengthen the subpopulation's longterm viability.

Although this action is expected to result in short-term negative impacts on individual CWTD because of potential capture-related injury and mortality from the translocation activities and harassment, injury, and mortality from subsequent ADM-related actions, the proposed action is expected to result in beneficial long-term impacts on the overall CWTD population, ultimately enhancing the distribution and viability of the lower Columbia DPS of the CWTD. The proposed action would, at a minimum, maintain the recovery status of the CWTD at a level that is similar to its current status. Under the best case scenario, the action may contribute to the eventual delisting of the Columbia River DPS by establishing a sixth subpopulation.

## **6.0 Cumulative Effects**

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BiOp. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Within the action area, non-federal actions that would have detrimental effects on CWTD are likely to include human population growth and associated land use practices that further modify and decrease quality and availability of CWTD habitat. New homes, businesses, and other land-altering developments would modify CWTD habitat. The associated construction of utility transmission lines, roads, and highways, with associated increases in vehicular traffic, noise, and human presence within the action area can be expected. However, there are no known specific future non-federal activities within the action area that would cause significantly greater impacts on CWTD than presently occur. Anticipated development would to some degree clear native vegetation, leading to further habitat fragmentation and potential decreases in the remaining native forest habitat. Continued development would also increase the amount of impervious surfaces

in the action area, leading to more erosive flows in tributary streams and associated loss of riparian and floodplain habitats. Additionally, increased traffic associated with existing and new roads and highways would increase the likelihood of CWTD collision-related mortality. This development may delay the recovery of CWTD, leading to a reduction in both the access to suitable habitat and in the security of existing suitable habitat for the species. Success of a new subpopulation at Ridgefield would eventually lead to a range expansion of CWTD into some human landscapes. Such expansion represents a return to the historic range, but also may lead to human/animal interaction in areas away from the release sites. Currently BTD occur in nearly all of the areas that the CWTD may eventually occupy. As CWTD population expands, it is expected that a certain level of habitat partitioning will occur, and that BTD will be replaced in marginal habitats that are more suited to CWTD.

Within the action area, non-federal actions that would have beneficial effects on CWTD include native species' conservation and recovery actions that seek to restore habitats important to CWTD and other native species. Land conservation organizations are actively and effectively seeking opportunities to acquire conservation easements and fee title ownership of important lands that support CWTD habitat. Other conservation groups are planning and implementing conservation actions directly and indirectly targeted at restoring CWTD habitat.

## **7.0 Conclusion**

After reviewing the best available scientific and commercial information available regarding the current status of CWTD, the environmental baseline for the action area, the effects of the proposed action, and cumulative effects, the Service concludes that the proposed action is not likely to jeopardize the continued existence of CWTD. The Service has determined that the proposed action is likely to adversely affect the Columbian white-tailed deer due to harassment, injury and mortality. Though the anticipated impacts have been minimized by careful management practices and conservation measures, there are many adverse effects that are not fully minimized by the proposed action. However, in order for an action to jeopardize the continued existence of the species, it must appreciably impair or preclude the capability of a recovery unit from providing both the recovery function and the survival function assigned it. While the effects of the proposed action would reduce the recovery function of the Columbia River DPS through the adverse impacts to a portion of one subpopulation, and while it may threaten the survival of some individual CWTD, these effects would not threaten the survival of the entire listed species. No critical habitat is designated for CWTD therefore no effects to critical habitat would occur.

## INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2) of the ESA, take that is incidental to and not intended as part of the agency action is not considered to be a prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The nature of the proposed action is the issuance of recovery permits under section 10(a)(1)(A) of the ESA to authorize direct take of the CWTD for purposes of translocating individual CWTD and subsequently conducting ADM on those translocated deer. Table 3 in the *Effects of the Action* section of this BiOp summarizes anticipated levels of direct take of the CWTD authorized under those permits as well as anticipated levels of incidental take likely to be caused by implementation of activities authorized under those permits. All of the terms and conditions associated with those permits, including measures to minimize the adverse impacts of incidental take of the CWTD and monitoring and reporting requirements, are herein incorporated by reference as terms and conditions of this Incidental Take Statement. On that basis no additional terms and conditions are provided below.

### **Effect of the Take**

In the accompanying BiOp the Service determined that the anticipated levels of direct and incidental take of the CWTD caused by the proposed recovery permit actions are not likely to jeopardize the continued existence of the CWTD.

### **REINITIATION NOTICE**

This concludes formal consultation on the proposed recovery permit actions. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this BiOp; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this BiOp; or (4) a new species is listed or critical habitat

designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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#### PERSONAL COMMUNICATIONS

- Meyers, P. 2010a. Julia Butler Hansen NWR, U.S. Fish and Wildlife Service. Telephone conversation with Rebecca Toland, U.S. Fish and Wildlife Service, Portland, Oregon, February 2, 2010. Subject: CWTD populations, movement, sensitivity to noise, and potential sites for conservation projects.
- Meyers, P. 2010b Julia Butler Hansen NWR, U.S. Fish and Wildlife Service. Telephone conversation with Rebecca Toland, U.S. Fish and Wildlife Service, Portland, Oregon, February 4, 2010. Subject: Discussion of CWTD home range, density and distribution.