# CANDIDATE AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Spermophilus washingtoni

COMMON NAME: Washington ground squirrel

LEAD REGION: 1

INFORMATION CURRENT AS OF: 1/7/03

STATUS/ACTION (Check all that apply):
___ New candidate
_X_ Continuing candidate
___ Non-petitioned
_X_ Petitioned - Date petition received: 3/2/00 (second petition)
90-day positive - FR date: ___
12-month warranted but precluded - FR date: ___
Is the petition requesting a reclassification of a listed species?
___ Listing priority change
Former LP: ___
New LP: ___
Latest Date species became a Candidate: 11/15/1994
___ Candidate removal: Former LP: ___ (Check only one reason)
___ A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.
___ F - Range is no longer a U.S. territory.
___ M - Taxon mistakenly included in past notice of review.
___ N - Taxon may not meet the Act's definition of "species."
___ X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Mammal (Sciuridae)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Oregon and Washington

CURRENT STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Oregon and Washington

LEAD REGION CONTACT (Name, phone number): Scott McCarthy 503/231-6131

LEAD FIELD OFFICE CONTACT (Office, name, phone number): Laura Todd, Oregon State Office, 503/231-6179; Linda Hallock, Upper Columbia Fish and Wildlife Office, 509/891-6839.

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, #individuals/population), etc.):

Life History

The Washington ground squirrel (Spermophilus washingtoni) is endemic to the Columbia Plateau, south of the Columbia River and east of the John Day River (Bailey 1936; Howell 1938; Betts 1990; Csuti et al.1997; Verts and Carraway 1998). Although the species is associated with sagebrush-grasslands of the Columbia Plateau (Betts 1990; Verts and Carraway 1998), recent studies indicate that silty loam soils, especially those classified as Warden soils, are of particular importance (Rickart and Yensen 1991; Greene 1999). The burrowing mammal seldom constructs burrows in areas of heavily disturbed soils, such as areas affected by activities including plowing, discing, crop production or others (Betts 1990, 1999; Greene 1999).

The Washington ground squirrel spends much of its time underground. Adults emerge from hibernation between January and early March, depending on elevation and microhabitat conditions (Sherman 2000), with males emerging before females (Bailey 1936; Verts and Carraway 1998; Sherman 2000). Their active time is spent in reproduction and fattening for their 6-month or longer dormancy. Adults return to their burrows by late May - early June, and juveniles return about a month later (Verts and Carraway 1998).

Washington ground squirrels produce only one litter of young per year due to their limited period of activity and reproduction. Sherman (2000) observed that 1-year old and older females mated, whereas males were not sexually mature until age 2. Males defend territories of 370-930 square meters (4,000-10,000 square feet) with burrows of up to six females (Sherman 2000). Sherman (2000) also noted that females were sexually receptive on only one afternoon per season, usually 1-2 days post-hibernation, and copulation occurred underground.

Sherman (1999) indicated that Washington ground squirrels gave birth during the last two weeks in February near Othello, Washington. The first litter of pups were seen above ground in mid-March. Sherman (1999) estimated that gestation and lactation required approximately 49-50 days.

## Habitat Description

Washington ground squirrels are found within the shrub-steppe habitat of the Columbia Basin ecosystem. Within this ecosystem, the species is found in a variety of habitats (Quade 1994). Betts (1990) determined that the Washington ground squirrel occupied areas with a greater grass and forb cover than adjacent unoccupied areas. Greene (1999) compared occupied to unoccupied shrub and grassland habitats to determine the factors most commonly associated with habitats used by Washington ground squirrels. Washington ground squirrels occurred at sites with higher vegetative cover, but soil type may be the most important habitat feature. Greene (1999) determined that the species selects soils with a high silt content, such as Warden soils found scattered throughout much of their range. Warden soils not only have a high silt content, they are very deep (U.S. Department of Agriculture 1983), allowing for deeper burrows that will maintain their structure compared to sandy or shallow soils. Warden soils occur east and south of the Columbia River.

## Range

The Washington ground squirrel occurs east of the Columbia River in two populations in the State of Washington, and one population south of the Columbia River in the State of Oregon

(Betts 1990, 1999). The three populations are highly disjunct, separated by more than 50 kilometers (30 miles) of unoccupied land (Betts 1990).

Status

Betts (1990, 1999) documented the curtailment in the range of the Washington ground squirrel. His surveys on historic and documented occurrences focused on the perimeters of the range with the intent of evaluating reductions in numbers of colonies and the size of the current range. Although Betts' surveys do not provide an exhaustive survey of all potential squirrel locations or numbers of individual, they do provide a good estimate of the distribution and decline of Washington ground squirrels in Oregon and Washington. Betts found that the species had disappeared from 73.8 percent of the sites in Washington and 76.9 percent of the sites in Oregon.

The historic range of the species, distributed over much of the shrub-steppe habitat of southeastern Washington and northeastern Oregon, has been modified and reduced to three disjunct areas (Betts 1990, 1999; Quade 1994; ODFW 1999; Vickerman et al. 2000). The smallest of these areas is the Badger Mountain population. It consisted of nine historic locations prior to 1989 (Betts 1990). When surveyed in 1987-1989, only four extant colonies were found, all of which were small in size and classified at a high vulnerability to extinction (Betts 1990). When surveyed again in 1998, squirrels were verified at only one of the four previously extant locations (Betts 1999). Four additional colonies have been reported north of the Badger Mountain population, but details about these sites were not provided (Betts 1999).

The area in southeastern Washington (i.e., Columbia Basin population) is the most widely distributed, least well surveyed, but likely the most sparsely populated area within the species' current range, both because of natural habitat conditions and modification of suitable habitat for agriculture. Historically, approximately 56 sites occurred in this area (Betts 1990). Betts' (1990) surveys indicated that about 43 sites had been lost in this area, about half since 1978. Of the approximately 47 historic and new confirmed sites in this area in 1987-1988, Washington ground squirrels were still evident at 37 (78 percent) in 1998 (Betts 1999). Most of these losses have resulted in further range curtailment, occurring primarily at the northern and southern boundaries of the range of the Columbia Basin population.

Recent, site-specific studies have located more colonies within the range of the Columbia Basin population in the Seep Lakes Wildlife Management Area and Columbia National Wildlife Refuge near Othello, Washington (Sherman 1999, 2000). Sherman (1999, 2000) observed 23 sites with squirrels in 1999 and again observed squirrels at each site in 2000. This area may represent the best stronghold for Washington ground squirrels and their habitat in southeast Washington.

The Oregon population is centered almost entirely on the United States Naval Weapons Systems Test Facility (Boardman Bombing Range), managed by the U.S. Navy (Navy), and the Boeing tract, which are State-owned lands originally leased to Boeing, Inc., and subleased to the agricultural corporation, Inland Land Company, LLC (Inland Land) (Oregon Department of Fish and Wildlife (ODFW) 1999). Another agricultural corporation, R.D. Offutt Company (Offutt Company) recently assumed the Boeing lease and is currently managing operations on the site.

Range reduction and documented habitat destruction have been greatest in Oregon within the Columbia Plateau population (Betts 1990, 1999). All but one of the 36 new and historic sites, located by Betts in 1987-1989, were located on the 10,595 hectares (ha) (26,180 acres (ac)) Boardman Bombing Range. Washington ground squirrels had disappeared from 20 of 26 historic locations, 12 of which were lost between 1979 and 1989 (Betts 1990). By 1999, the 36 observed colonies had been reduced to nine, a decrease of 75 percent (Betts 1999). Since Betts' surveys were conducted, Greene (1999) completed a more detailed survey of the Boardman Bombing Range, documenting 69 colonies. Most sites outside the bombing range and Boeing tract are extirpated with only two documented sightings and five possible sightings outside these areas (Betts 1999). Although additional colonies have been found, and may continue to be located in some areas, the losses in historic populations provide a quantitative measure of known declines which was likely paralleled among previously undiscovered locations. Anecdotal accounts and references support this unquantified loss in Washington ground squirrel numbers and colonies (Bailey 1936; Howell 1938; Carlson et al. 1980; Verts and Carraway 1998)

Morgan and Nugent (1999) completed the most comprehensive survey within the species' range on about 7,824 ha (19,333 ac) of State-owned lands in Oregon , known as the Boeing tract, adjacent to the bombing range. They located a total of 37 colonies, and additional colonies may be present in areas where access was restricted by Inland Land and which, therefore, remain unsurveyed. This area of more than 18,616 ha (46,000 ac), comprised of the Boeing Tract and Boardman Bombing Range, supports all but one of the colonies known in Oregon and 74 percent of all the known colonies within the species' range.

Betts (1990) subjectively evaluated the vulnerability to extinction of each of the remaining known colonies based on colony size, isolation, land ownership, and threat from human activity. Approximately 29 percent of all colonies were highly vulnerable to extinction (19 percent in Oregon, 35 percent in Washington); 31 percent were moderately vulnerable (39 percent in Oregon, 25 percent in Washington); and 40 percent had low vulnerability (42 percent in Oregon, 39 percent in Washington). In many cases, Betts' predictions proved correct, and many colonies classified as vulnerable were no longer present by 1999 (Betts 1999).

The rapid declines of some populations of the Washington ground squirrel have occurred despite habitat protections and limited conservation efforts. In Washington, recent declines have been precipitous and for unknown reasons (Sherman 2001). In 2001, Sherman (2001) noted the loss of entire colonies of ground squirrels on the Columbia National Wildlife Refuge and Seeps Lake Management Area near Othello, Washington, despite the protected status of the species in the area. In addition, he observed significant declines in body mass, most individuals measured less than 50 percent of the average body mass in previous years. Many adults experienced a complete failure to reproduce in 2001, likely as a result of starvation (Sherman 2001). The Columbia National Wildlife Refuge attempted emergency supplemental feeding of selected colonies, but the success of these efforts is unknown (Randy Hill, Service, pers. comm., 2000). Individuals that lacked sufficient body weight are not likely to survive the 7 to 8 month hibernation period this species experiences.

THREATS:

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

The greatest threat to the species is loss of habitat. Habitat is destroyed through commercial, residential and agricultural development, and the conversion of suitable habitat to agricultural uses is an on-going practice. Disturbance through activities such as tilling and irrigation of the appropriate soil types renders the habitat unsuitable and can result in mortality of occupied colonies. There are currently no records of these losses and no mechanism to protect occupied colonies.

Agricultural conversion of shrub-steppe habitat is the primary cause of the decline of the Washington ground squirrel (Carlson et al. 1980; Betts 1990, 1999; Quade 1994). However, certain types of agriculture are more destructive to squirrel habitat than others. Intensive grazing has been shown to reduce cover and forage, adversely affecting Washington ground squirrels (Greene 1999). Carlson et al. (1984) found that Washington ground squirrels commence aestivation 2-4 weeks earlier in grazed areas, potentially indicating that green forage was in short supply. Early aestivation can be harmful to Washington ground squirrels if they fail to reach an adequate weight to maintain body functions until emergence the following spring (Carlson et al. 1984).

Soil disturbance associated with crop production may be the most damaging agricultural activity to Washington ground squirrels (Carlson et al. 1980; Quade et al. 1984; Greene 1999). Tilling and other soil disturbance destroys the necessary structure of the specific silty soil-types (i.e., Warden soils) on which the species relies (Greene 1999). Surveys of areas developed for irrigated agriculture on the Boeing tract have not yielded any Washington ground squirrel observations (CH2M Hill 2000).

In addition to changes in soil composition, historic and current agricultural practices may inadvertently affect adjacent Washington ground squirrel colonies. Greene (1999) found that in addition to soil type, Washington ground squirrel density and abundance decreased with higher percentages of bare ground. Certain practices, such as leaving croplands fallow, could adversely affect foraging Washington ground squirrels. Bare ground may also leave squirrels more vulnerable to predation (Greene 1999).

In addition to direct impacts to Washington ground squirrel habitat, agricultural and other development has led to fragmentation of habitat and isolation of colonies (Betts 1990, 1999). In analyses conducted using mark and recapture techniques, Washington ground squirrels moved only short average maximum distances 85 - 239 m (279 - 784 ft) between capture points (Carlson et al. 1980; Quade 1994; Greene 1999). Although the sample size was low, Sherman (2000) observed no movements between marked colonies in Washington. Given the lack of substantial dispersal movements, isolation and fragmentation of colonies and habitat can severely affect Washington ground squirrels by limiting genetic exchange and reproduction, exposing small colonies to destruction from unpredictable catastrophic events such as fire or drought, and limiting habitat available for escape if occupied habitat becomes unsuitable. The isolation of colonies and fragment of habitat therefore increases the risk of extinction by increasing the probability that these colonies and interactions between other colonies will be destroyed.

Continued agricultural conversion further fragments suitable habitat and isolates otherwise healthy populations. Betts (1990) predicted the vulnerability to extinction of known squirrel colonies based on the size, isolation, and land use, and subsequent surveys (Betts 1999) proved

many of his predictions correct. As Betts (1999) states, while small isolated populations "may persist for some time, they are highly vulnerable to extinction from a variety of factors such as predation, parasitism, and weather that may reduce the population below a sustainable level or eliminate it entirely."

The State of Oregon owns one of the two largest contiguous blocks of land with Washington ground squirrels in the range of the species. Oregon leased the 38,708 ha (95,650 ac) property to Boeing, Inc. in the early 1960s with the stipulation that the land be developed. Boeing's development plans failed to materialized, and to meet the requirements of their lease, they subleased the property to several large agricultural corporations and individuals. The largest block of land is subleased to Inland Land. Boeing transferred the lease of the site to the Offutt Company (W. Downey, Offutt Company, pers. comm., 2000). The intentions of the new lessee are not known, but the company has expressed a desire to work toward an equitable management of Washington ground squirrel habitat and agricultural development. The Department of Administrative Services (DAS) manages the contract with the site lessee.

Approximately 35 percent of the 38,708 ha (95,650 ac) have been modified for irrigated agriculture (ODFW 1999). At least 37 Washington ground squirrel colonies have been located on approximately 7,952 ha (19,650 ac) of the southern portion of the site (Morgan and Nugent 1999). It is likely, based on survey of the adjacent Boardman Bombing range, that additional colonies occur in smaller numbers on undeveloped lands north of the surveyed area, but Inland Land will not allow access to this area to conduct surveys (ODFW 1999).

Inland Land has developed a plan to convert most of the undeveloped areas on the Boeing site to irrigated agriculture (ODFW 1999; Vickerman et al. 2000). This agricultural project is one of the primary reasons the State of Oregon listed the species as endangered in February 2000 (OAR 635-044-0130). During 1998-2000, Inland Land prepared approximately 1,620 ha (4,000 ac) in the northeast corner of the previously undeveloped portion of the Boeing site for irrigated crops. The Proposed Final Orders for use of water rights to irrigate much of these lands have been issued but not finalized. Applications to perfect water rights on the remaining acreage are under review by the Oregon Water Resources Department (Vickerman et al. 2000), but a decision has not been made regarding these applications (M. Pagel, Oregon Water Resources Department, pers. comm., 2000).
Maps and applications for the extension of water rights indicates that Inland Land plans to develop as much of the Boeing site as possible (ODFW 1999; Filipi 2000; Vickerman et al. 2000). This proposal is planned for at least five phases (ODFW 1999; Filipi 2000; Vickerman et al. 2000). Phase I and II, developed in 1998-1999, have already resulted in the destruction of approximately 1,620 ha (4,000 ac) of habitat (ODFW 1999; Filipi 2000; Vickerman et al. 2000). The schedule for development and acreage for the remaining Phases IIIA-V is not available, but Inland Land has only specifically stated that development of 7,824 ha (19,333 ac) of surveyed, occupied areas in Phases IIIA and IV will not occur until 2003 (Inland Land 2000). The remaining undeveloped areas are presumably planned for development in 2001 and 2002.

Because the squirrel is so closely tied to deep, silty soils, specifically Warden soils on the Boeing Tract (Greene 1999), the tilling and other mechanisms involved in conversion of shrub-steppe habitats to agricultural crop production not only destroys the species' food source, but it also renders the soils necessary for burrowing unuseable and irretrievably modified. Washington ground squirrels are not found in tilled croplands (Carlson et al. 1980; Betts 1990,

1999; Quade 1994), nor have they been located in undeveloped areas between irrigated crops (CH2M Hill 2000).

In addition to the proposed development of the Boeing Tract, the Boardman Bombing Range, which supports the highest known concentration of Washington ground squirrels and best available habitat (Carlson et al. 1980; Betts 1990; Quade 1994; Greene 1999), is not fully secure. Two portions of the site, totaling 2,046 ha (5,055 ac), are designated as Research Natural Areas and managed by The Nature Conservancy. The remaining 8,024 ha (19,827 ac) is managed by the Navy for military training and grazing allotments (Quade 1994; Greene 1999). The Navy plans to decommission the base within the year, eliminating all military training and military security personnel from the site (S. Pennix, Navy, pers. comm., 2000). Grazing will continue at current levels, which Greene (1999) determined may not be conducive to Washington ground squirrel occurrence if bare ground cover increases above approximately 13 percent. The Navy will continue to manage the site as it does not have the resources to remove potential unexploded ordinances or toxic materials (S. Pennix, pers. comm., 2000). There are no formal agreements with private landowners, or State or Federal agencies to protect the Washington ground squirrel, nor do State or Federal agencies have management plans that specifically address the needs of the species or its habitat.

Even on State-owned lands in Oregon, the loss of known sites is likely. The City of Ione and Morrow County have proposed the construction of a highway through the largest area of suitable and occupied habitat in the range of the species (M. Greenfield, Oregon Department of Administrative Services, pers. comm., 2000). If this proposal is approved, the construction of the road will not only bisect the largest area of contiguous habitat occupied by the squirrel and cause direct loss of occupied colonies, it will increase degradation of the remaining adjacent habitat, isolate potentially connected colonies, and cause road-associated mortality. At two sites, one colony had been exterminated by the landowner, and the habitat had been removed for a house at the other (Betts 1999).

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

Washington ground squirrels, often viewed as pests (Bailey 1936; Howell 1938; Rickart and Yensen 1991), are subject to recreational shooting and poisoning to reduce impacts to agricultural crops (Betts 1990, 1999; Rickart and Yensen 1991; Sherman 2000). Sherman (2000) documented deaths of two individuals marked for study. One carcass of a pregnant female was found with a bullet wound in the back. The dominant male of the colony disappeared and was presumed to have been shot. These individuals represented 22 percent of the marked individuals in the colony and were the only observed Washington ground squirrel mortalities during the 2000 field season.

C. Disease or predation.

Badgers (Taxidea taxus) appear to be an important predator of Washington ground squirrels (Bailey 1936; Rickart and Yensen 1991; Betts 1990, 1999; Morgan and Nugent 1999). Badgers are a particular threat to small, isolated colonies and may cause local extirpations (Betts 1999). Morgan and Nugent (1999) noted that some colonies appeared to have been eliminated by

badgers on the Boeing Tract, and badger digging activity is common within Washington ground squirrel colonies (Betts 1990; Sherman 1999, 2000). On two occasions, Sherman (1999) observed badgers attempting to dig out Washington ground squirrels. Long-tailed weasels (Mustela frenata) are frequently observed near colonies (Martin and Nugent 1999), and have been observed hunting and feeding on Washington ground squirrels (Sherman 1999). Other observed predators include--northern harriers (Circus cyaneus), golden eagles (Aquila chrysaetos), red-tailed hawks (Buteo jamaicensis), Swainson's hawks (Buteo swainsoni), ferruginous hawks (Buteo regalis), prairie falcons, (Falco mexicanus), rough-legged hawks (Buteo lagopus), short-eared owls (Asio flammeus), gopher snakes (Pituophis melanoleucus), and western rattlesnakes (Crotalus viridis) (Carson et al. 1980; Verts and Carraway 1998; Sherman 1999, 2000).

Little disease is known or reported to occur in Washington ground squirrel populations, but predation appears to be a major source of mortality (Carlson et al. 1980; Betts 1990, 1999; Greene 1999; Sherman 1999, 2000). However, ectoparasites (fleas, mites, etc.) are frequently observed on captured individuals but seldom appear to be problematic (Carlson et al. 1980; Sherman 1999, 2000). Townsend's ground squirrels (Spermophilus townsendii) were seriously reduced by an outbreak of sylvatic plague in Washington in 1936 (Betts 1990). Fleas found on Washington ground squirrels were tested for sylvatic plague, known to affect other related ground squirrels (Betts 1990), but none have tested positive (Carlson et al. 1980). In addition, sylvagic plague was recorded within the range of the species, and may have been a factor in the abrupt decline of the pygmy rabbit (Brachylagus idahoensis), a species which is distributed within the range of the Washington ground squirrel. The potential for contraction of sylvatic plague exists and could be devastating to the species. The fragmentation of remaining habitat and isolation of small colonies that remain in Eastern Washington have made extant colonies of Washington ground squirrels highly susceptible to disease, predation, and adverse environmental conditions such as drought.

D. The inadequacy of existing regulatory mechanisms.

Several factors related to the inadequacy of existing regulatory mechanisms affect the Washington ground squirrel in Oregon and Washington. In addition to observed losses in individual colonies, this species receives no habitat protection within Washington and no protection outside State-managed lands in Oregon. In Washington, the species is listed as a State candidate species with no legal protection. A species is considered a candidate if sufficient evidence suggests that its status may meet the listing criteria defined for State Endangered, Threatened, or Sensitive (Washington Department of Fish and Wildlife 1998).

In Oregon, the species is listed as an endangered species due to loss of habitat, fragmentation and isolation of colonies and suitable habitat, proposed development of much of the species range within Oregon, and inadequate Federal and State regulations to protect the species (OAR 635-044-0130). The Oregon Endangered Species Act (OESA) provides protection from "take" (to kill or obtain possession or control of any wildlife, as defined by ORS 496.004) on State-owned, leased, or managed lands. Once listed, the OESA no longer provides any protection against take of Washington ground squirrels on private property (ORS 496.192), as was the case when the species was classified as sensitive (OAR 635-044-0130).

The OESA requires that survival guidelines be adopted at the time of listing (ORS 496.182; OAR 635-100-0130, 635-100-0136). Survival guidelines are "quantifiable and measurable guidelines that [the State Fish and Wildlife Commission] considers necessary to ensure the survival of individual members of the species" (ORS 496.182(2)). These survival guidelines "apply only to actions proposed on lands owned or leased by a State agency, or where a State agency holds an easement" (OAR 635-100-0136). Survival guidelines were adopted for the Washington ground squirrel on February 4, 2000 (OAR 635-100-0136).

Under the survival guidelines (OAR 635-100-0136), activities detrimental to the survival of Washington ground squirrels are not to be permitted in areas of occupied habitat on the Boeing site or other State-owned, managed or leased lands. Unsurveyed, undeveloped areas within Boeing site must be surveyed for the presence of Washington ground squirrels, using survey methods developed by the ODFW as described by Morgan and Nugent (1999). The guidelines prohibit activities within 150 meters (m) (492 feet (ft)) of squirrel use areas, half the buffer size recommended by Greene (1999), based on habitat preferences observed at Boardman Bombing Range. The guidelines also limit loss of habitat or physical connectivity between sites or isolate sites from other colonies or occupied habitat areas.

The survival guidelines also allowed continuation of planned agricultural development by exempting Inland Land from the guidelines between January 21, 2000 and February 18, 2000, providing enough time to complete planned development in 2000. The exemption was established with the provision that all "activities detrimental to the survival of Washington ground squirrels" were conducted in a manner that avoids take (i.e., killing or possessing) of Washington ground squirrels (OAR 635-100-0136).
For any other State-owned or leased land or easements elsewhere within Oregon where suitable Washington ground squirrel habitat and soil types occur, ODFW mandated State agencies consult with the Department before authorizing activities detrimental to Washington ground squirrels.

These guidelines will likely result in the interim protection of the 7,824 ha (19,333 ac) on the occupied southern portions of the Boeing site. However, inadequacies exist that may not maintain protection on the remainder of the site. First, Inland Land has allowed the State very limited access to the previously unsurveyed portions of the Boeing site (M. Nugent, ODFW, pers. comm., 2000). This situation leaves ODFW unable to either conduct surveys or for the State to enforce the survival guidelines or take prohibitions. Under the OESA, DAS will be required to develop an endangered species management plan for Washington ground squirrels (ORS 496.182(8)(a)(A), OAR 635-100-0140). DAS is required to formulate a plan that considers the species biology and needs for conservation balanced against the statutory or constitutional requirements of the agency, the social and economic impacts of conservation, the purpose of State land, and the roles that other State lands may play in conservation (OAR 635-100-0140(3)). Given the agency's requirements, the purpose of the leased land, and the potential economic impact of reducing agricultural development in the local area, the plan adopted by DAS could potentially result in even weaker protection for Washington ground squirrel than is currently in place.

Another factor affecting the State's ability to protect the species is conflicting regulations regarding nongame species and State listed species. The take prohibition under the OESA only applies to State-owned, leased and managed lands, and is narrowly defined as "kill or obtain or

control" of the species (ORS 496.004(15)). The Washington ground squirrel is also identified by the State as a protected nongame species (OAR 635-044-0130). This designation protects the species from hunting, shooting, killing, or possession on all lands within the State . However, ORS 610.105 provides an exception, allowing landowners to kill any rodent by poisoning, trapping or other means. Because the Washington ground squirrel is a rodent, it may be vulnerable to poisoning, trapping, or other control under this statute.

Relevant Federal laws include the Endangered Species Act (Act), Clean Water Act, Fish and Wildlife Coordination Act, National Environmental Policy Act, and Federal Land Management and Policy Act. Federal regulations and policies provide no protection to candidate species. Although we recommend that Federal agencies confer with us to avoid economic loss and unnecessary delays if a candidate species is eventually listed and is affected by their actions, there is no requirement under Act that Federal agencies confer with the Service for candidate species.

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

Other agricultural practices may adversely affect the continued existence of Washington ground squirrels. The species has been classified as an agricultural pest since it was first identified (Bailey 1936; Howell 1938). As late as 1999, the Oregon Department of Agriculture received applications to apply pesticides to reduce Washington ground squirrel predation on crops. Other rodent species occur within and adjacent to the range of the Washington ground squirrel that are also considered agricultural and residential pests and are targeted with pesticides that could incidentally impact Washington ground squirrels. At least 27 pesticides are registered in Oregon and Washington for application targeted at ground squirrels (Washington State University (WSU) 2000). Their uses vary from home and garden to general rangeland applications (WSU 2000). Applications may also be targeted at other species that occur near Washington ground squirrel colonies (WSU 2000), but Washington ground squirrels could inadvertently be affected by runoff, overspray, or accidental ingestion. The authorized use of these pesticides is widespread in Oregon and Washington (WSU 2000) and is particularly likely to impact small and isolated colonies, but the overall affect of these chemicals on the species is unknown.

The causes of starvation, lack of reproduction, and colony losses are unknown. Subjective observations of habitat conditions did not appear to be substantially different from previous years, but Sherman (2001) observed that colonies with higher survival, reproduction, and body mass may have benefitted from presence of the non-native grass Poa bulbosa (bulbous bluegrass), whereas cheatgrass (Bromus tectorum) predominates at colony sites with poor reproduction, body mass, or survival.

FOR RESUBMITTED PETITIONS:

a. Is listing still warranted? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. Is a proposal to list the species as threatened or endangered in preparation? No
d. If the answer to c. above is no, provide an explanation of why the action is still precluded: Since publication of the 2002 CNOR, the publication of a proposed rule to list this species has been precluded by other higher priority listing actions, and based on work scheduled we expect that will remain the case for the

remainder of Fiscal Year 2004. Almost the entire national listing budget has been consumed by work on various listing actions taken to comply with court orders and court-approved settlement agreements, emergency listing, and essential litigation-related, administrative, and program management functions. We will continue to monitor the status of the Washington ground squirrel as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

LAND OWNERSHIP:

Betts (1990) classified land ownership for the 87 known colonies in Oregon and Washington. Approximately 59 percent were in private ownership, 17 percent were under government management (State or Federal not specified), and land ownership was unknown for 19 colonies. In 1999, an additional minimum of 37 colonies were located on 7,824 ha (19,333 ac) of the Boeing tract, owned by the State of Oregon and leased to Boeing Inc., subleased to the Offutt Company and Inland Land (Morgan and Nugent 1999).

PRELISTING:

No conservation agreements have been completed. The Service is cooperating with the State of Oregon to pursue cooperative agreements primarily with the Navy to conserve the species on the Boardman Bombing Range. Three Mile Canyon Farms has recently purchased the Boeing tract from the State of Oregon and, in coordination with the Service, is in the process of developing a Candidate Conservation Agreement with assurances for this property. However, currently, the amount or quality of habitat which may eventually be protected in this area is unknown. It is also uncertain whether the level of protection offered would be adequate to provide long-term survival of the species.

The species only occurs in Region 1 and only in Oregon and Washington. The Oregon State Office (OSO) has contacted the Upper Columbia River Basin Field Office and will continue to coordinate efforts. OSO has been closely coordinating with the State of Oregon to assess the status of the species. In 1997, OSO contracted the ODFW to compile information necessary to complete this candidate assessment form. The form was completed in conjunction with the Oregon Natural Heritage Program and ODFW in October 1998. In January 1999, the State of Oregon was petitioned to emergency list the species as an endangered species under the OESA, and the species was listed as a State endangered species in January 2000. OSO has attended several meetings with the ODFW and the Oregon Fish and Wildlife Commission to obtain and analyze information and data regarding the status and potential threats to the species. The Service is initiating contact with Inland Lands, the primary land manager, proposing development of State-owned lands.

ODFW and OSO intend to cooperate to attempt to obtain a conservation agreement on the Boardman Bombing Range, managed by the Navy. The Navy has been hesitant to consider a conservation agreement, and the site is now undergoing base closure. Both agencies intend to continue to pursue an agreement with the Navy to conserve the Washington ground squirrel and other declining native species that occur on the bombing range.

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LISTING PRIORITY (place * after number)

| THREAT | | | |
|---|---|---|---|
| Magnitude | Immediacy | Taxonomy | Priority |
| High | Imminent | Monotypic genus | 1 |
| | | Species | 2* |
| | | Subspecies/population | 3 |
| | Non-imminent | Monotypic genus | 4 |
| | | Species | 5 |
| | | Subspecies/population | 6 |
| Moderate to Low | Imminent | Monotypic genus | 7 |
| | | Species | 8 |
| | | Subspecies/population | 9 |
| | Non-imminent | Monotypic genus | 10 |
| | | Species | 11 |
| | | Subspecies/population | 12 |

*Magnitude*: The Service has determined that the magnitude is high. The range of this species is limited by soil and vegetation. Curtailment of the species range has resulted in small isolated populations that are easily extirpated by localized events. All of these threats have been observed in the past year, are likely to continue, and threaten the survival of many Washington ground squirrel colonies across the range of the species.

*Imminence*: The Service has determined that the threats are Imminent. Planned developments by corporations and municipalities will destroy and further isolated fragmented habitat for this species.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Rowan Gould March 6, 2003
Acting Regional Director, Fish and Wildlife Service Date

Concur: Steve Williams April 5, 2004
Director, Fish and Wildlife Service Date

Do not concur: _____ _____
Director, Fish and Wildlife Service Date

Director's Remarks: _____

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_____

Date of annual review: February 2003
Conducted by: Laura Todd

Comments:_____

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