

FINAL ENVIRONMENTAL ASSESSMENT

**ISSUANCE OF SECTION 10(a)(1)(A) ENHANCEMENT OF SURVIVAL PERMITS
AND IMPLEMENTATION OF A TEMPLATE SAFE HARBOR AGREEMENT FOR THE
COLUMBIA BASIN PYGMY RABBIT**

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I. SUMMARY

The U.S. Fish and Wildlife Service (Service or we) proposes to implement a Template Safe Harbor Agreement (Agreement) for the endangered Columbia Basin distinct population segment of the pygmy rabbit (*Brachylagus idahoensis*) and, in conjunction with the Agreement, to issue Enhancement of Survival Permits (Permits) pursuant to section 10(a)(1)(A) of the Federal Endangered Species Act of 1973, as amended (Act). The Agreement is between the Service, Washington Department of Fish and Wildlife (WDFW), and non-Federal and non-WDFW land owners and managers (Participants) who elect to enroll their property under the Agreement through development of individual Site Plans (USFWS 2006a). The primary objective of the Agreement is to facilitate collaboration between the Service, WDFW, and prospective Participants to voluntarily enroll their properties and implement conservation measures to benefit the Columbia Basin pygmy rabbit. In exchange for their contributions, the Service would issue Permits to Participants for terms of up to 20 years, which is the term of the Agreement. Participants would be provided with regulatory assurances and, through their Permits, would be authorized to incidentally “take” Columbia Basin pygmy rabbits as a result of otherwise lawful management activities on their enrolled properties. Take can result from any activities that may harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a listed species, or attempt to engage in any such conduct.

There are currently no Columbia Basin pygmy rabbits known to remain in the wild. However, through coordination with the Service, WDFW proposes to release captive-bred Columbia Basin pygmy rabbits into suitable habitat at two recovery emphasis areas, one in southern Douglas County and one in northern Grant County, Washington (Figure 1). The planned releases are part of State and Federal efforts to recover the Columbia Basin pygmy rabbit. The captive-bred Columbia Basin pygmy rabbits proposed for release have been intercrossed with individuals from another pygmy rabbit population of the same taxonomic classification, and have some minor level (i.e., $\leq 25\%$) of non-Columbia Basin pygmy rabbit ancestry (see Genetics Management, below). The use of intercross animals for reintroduction efforts is considered essential for Columbia Basin pygmy rabbit recovery efforts (USFWS 2006b). The Service and WDFW anticipate that, as a result of planned reintroduction efforts, captive-bred Columbia Basin pygmy rabbits will occupy and may become established on non-Federal and non-WDFW properties, which prompted development of the proposed Agreement.

The National Environmental Policy Act of 1969, as amended (NEPA), requires Federal agencies to evaluate and disclose the effects of their proposed actions on the human environment. Based on various stakeholder concerns regarding planned recovery efforts, the Service has determined that an Environmental Assessment (EA) is appropriate to analyze the effects of the proposed actions. This EA addresses the potential effects on the human environment associated with implementation of the proposed Agreement and anticipated issuance of Permits in association with recovery efforts for the Columbia Basin pygmy rabbit. In accordance with Service responsibilities under NEPA, this EA also addresses a “no-action” alternative, which provides an assessment of future conditions in the absence of the proposed Federal actions.

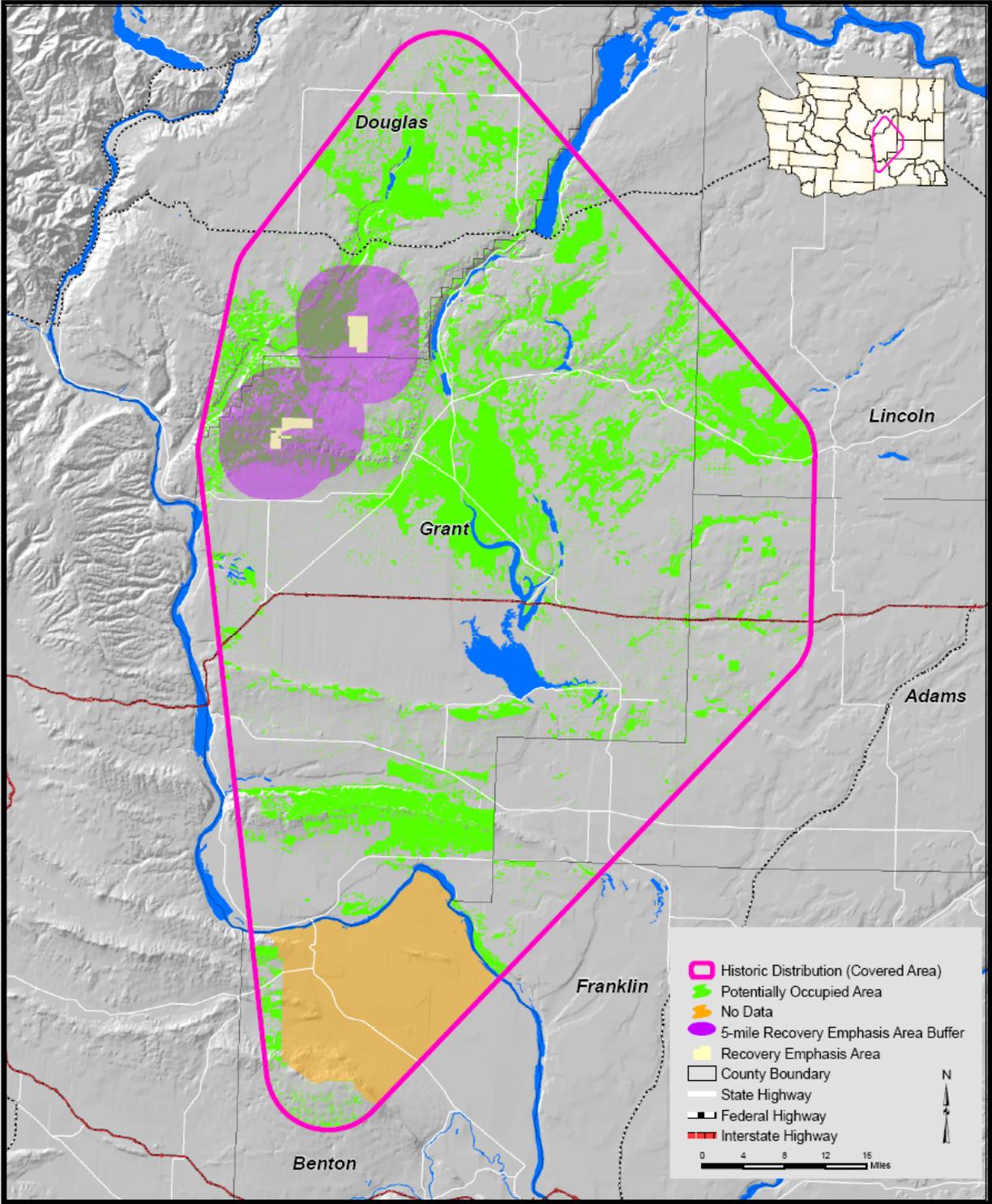


Figure 1. Overall area covered by Agreement, potentially occupied habitat / soil conditions, and recovery emphasis areas (see text).

A. Background

1. Species Life History

More complete biological information and references for the following discussions may be found in other Service documents (USFWS 2003a, USFWS 2006c).

Description: The pygmy rabbit (*Brachylagus idahoensis*) is the smallest rabbit species in North America, with mean adult weights ranging from 0.8 to 1.1 pounds and lengths from 9 to 12 inches. The pygmy rabbit is most similar in appearance to cottontail rabbits (*Sylvilagus* spp.), but is distinguishable from other rabbit species by its small size, short ears, small hind legs, and lack of white on the tail. There are no recognized subspecies of the pygmy rabbit. The Service recognizes pygmy rabbits within the Columbia Basin (see Historic and Present Distribution, below) as a distinct population segment pursuant to the Act.

Habitat Use: Pygmy rabbits are typically found in areas that include tall, dense stands of sagebrush (*Artemisia* spp.), and are highly dependent on sagebrush to provide both food and shelter throughout the year. The pygmy rabbit is one of only two rabbit species in North America that digs its own burrows, which are typically found in deep, loose soils. However, pygmy rabbits occasionally make use of burrows abandoned by other species and, as a result, may occur in areas of shallower or more compact soils that support sufficient shrub cover.

Breeding Behavior: Pygmy rabbits begin breeding their second year of life and, in Washington, breeding may occur from February through July. In some parts of their distribution, female pygmy rabbits may have up to three litters per year and average six young per litter. Recent information on captive and wild pygmy rabbits indicates that pregnant females excavate cryptic, relatively shallow burrows, known as natal burrows, in the vicinity of their regular burrows, which are used to give birth in and for nursing and early rearing of their litters.

Home Range and Movements: Pygmy rabbits have relatively small home ranges during winter and remain within several hundred feet of their burrows. They have larger home ranges during other seasons and, for male pygmy rabbits in Washington, these areas may cover up to roughly 50 acres. Recent records from studies in Idaho indicate that pygmy rabbits may make abrupt movements of over 7 miles between their smaller, seasonal use sites. While these movements are considerably longer than those previously documented, these are maximum estimates and there are large differences in the propensity of individual pygmy rabbits to disperse, with most remaining relatively sedentary.

Survival: The annual survival rate of adult pygmy rabbits may be as low as 12%. However, the mortality rates of adult and juvenile pygmy rabbits can vary considerably between years, and even between juvenile cohorts within years. Predation has been shown to be the main cause of pygmy rabbit mortality, with potential predators including badgers (*Taxidea taxus*), long-tailed weasels (*Mustela frenata*), coyotes (*Canis latrans*), bobcats (*Felis rufus*), great horned owls (*Bubo virginianus*), long-eared owls (*Asio otus*), ferruginous hawks (*Buteo regalis*), northern harriers (*Circus cyaneus*), and common ravens (*Corvus corax*).

Historic and Present Distribution: The historic distribution of the pygmy rabbit included portions of Montana, Idaho, Wyoming, Utah, Nevada, California, Oregon, and Washington. The pygmy rabbit has been present within the Columbia Basin ecosystem, a geographic area that extends from northern Oregon through eastern Washington, for over 100,000 years. This population segment, referred to as the Columbia Basin pygmy rabbit and which is the subject of this EA, is believed to have been disjunct from the remainder of the species' range for at least 10,000 years, as suggested by the fossil record and population genetic analyses.

2. Status of Columbia Basin Pygmy Rabbit

Museum specimens and sighting records indicate that the Columbia Basin pygmy rabbit may have occurred in portions of six counties in central Washington during the first half of the 1900s, including Douglas, Grant, Lincoln, Adams, Franklin, and Benton (Figure 1). With the exception of a single record from Benton County in 1979, Columbia Basin pygmy rabbits have only been found in southern Douglas and northern Grant Counties since 1956. The distribution and abundance of Columbia Basin pygmy rabbits in Washington has declined dramatically since the mid-1990s (WDFW 2001a). Surveys of the last known occupied site, located in southern Douglas County, have not detected any animals since mid-2004 (B. Patterson, WDFW, pers. comm. 2006), indicating that the population may now be extirpated from the wild.

The Washington Wildlife Commission designated the pygmy rabbit as a State threatened species in 1990, and reclassified it as endangered in 1993 (WDFW 1995). The Service emergency-listed the Columbia Basin distinct population segment of the pygmy rabbit as endangered under the Act in 2001 (USFWS 2001), and fully listed the population as endangered in 2003, without critical habitat (USFWS 2003a).

Threats Summary: Large-scale habitat loss and fragmentation likely played a primary role in the long-term decline of the Columbia Basin pygmy rabbit. However, it is unlikely that these factors directly influenced the declines noted since the mid-1990s and the eventual extirpation of all known subpopulations from the wild. Once a population declines below a certain threshold, it is at risk of extirpation from a number of influences including chance environmental events (e.g., extreme weather), catastrophic habitat or resource failure (e.g., due to fire or insect infestations), predation, disease, demographic limitations, and loss of genetic diversity. To some extent, all of these influences have likely impacted the Columbia Basin pygmy rabbit and, in combination, have led to the population's endangered status.

3. Conservation Measures

State Recovery Planning: WDFW published the Washington State Recovery Plan for the Pygmy Rabbit in 1995 (WDFW 1995), and plan addenda in 2001 (WDFW 2001a) and 2003 (WDFW 2003). State conservation efforts have included population surveys, habitat inventory, land acquisition, habitat restoration, land management agreements, initial studies on the effects of livestock grazing, and predator control. Despite these efforts, in 2001 WDFW concluded that attempting to manage the remaining Columbia Basin pygmy rabbits in the wild would encumber

the population with extreme risk due to the array of threats it faced. To address this risk, WDFW determined that intervention, by way of a captive breeding program, was necessary to prevent the extinction of the Columbia Basin pygmy rabbit.

Federal Recovery Planning: The Service assembled a multi-party Recovery Team in 2003. The team's main objective is to assist the Service with development of a Federal Recovery Plan for the Columbia Basin Pygmy Rabbit (Recovery Plan). Currently, a preliminary Draft Recovery Plan describes management actions needed to initiate recovery of the Columbia Basin pygmy rabbit and provides the necessary framework and projected time lines to accomplish those actions (USFWS 2006c). To the extent possible (see following), the Draft Recovery Plan also identifies specific criteria that must be met to achieve Federal recovery objectives.

There are currently a number of information gaps in our knowledge about how the Columbia Basin pygmy rabbit will respond to ongoing and developing conservation strategies. The available information does not allow for a long-term Recovery Plan to be developed or specific criteria to be defined that, when met, could ensure the population's full recovery. Therefore, the Recovery Team adopted a phased approach for recovery planning (i.e., 10-year increments), which will allow for formulation and implementation of appropriate adaptive management as the information base concerning the Columbia Basin pygmy rabbit improves. An adaptive management strategy, near-term recovery objectives, and a range of criteria that would be necessary to federally down-list the population from endangered to threatened status are currently identified in the Draft Recovery Plan.

Captive Breeding: During fall 2000, WDFW, in cooperation with the Oregon Zoo, initiated studies of husbandry and captive breeding techniques using seven pygmy rabbits captured in southeastern Idaho (WDFW 2001a). These studies were undertaken to improve the information base for proposed captive breeding and reintroduction efforts for the Columbia Basin pygmy rabbit. In 2002, researchers at Washington State University (WSU) also initiated studies to investigate reintroduction techniques using the Idaho pygmy rabbits (see Reintroduction).

Between mid-2001 and early 2002, WDFW captured 16 Columbia Basin pygmy rabbits from the last known occupied site to begin a captive breeding program to prevent the extinction of the population. Following emergency Federal listing action in 2001, the Service issued an Endangered Species Recovery Permit to WDFW to cover the ongoing captive breeding program (USFWS 2003b). No additional wild animals were captured prior to the extirpation of the last known subpopulation in mid-2004.

There are several lines of evidence from ongoing studies that suggest the Columbia Basin pygmy rabbit was suffering from inbreeding depression, including poor reproductive performance of the captive animals, declining genetic diversity in the wild and continued loss of genetic diversity in captivity, increased susceptibility to disease compared to Idaho pygmy rabbits and other lagomorph species, and, possibly, the existence of unusual skeletal abnormalities. Given the constraints in captive breeding efforts that came to light over the first several years of the program, reintroduction planning for the Columbia Basin pygmy rabbit was postponed until appropriate research and management measures could be implemented to address the constraints.

Although the available information suggests that the Columbia Basin pygmy rabbit may be extirpated from the wild, WDFW and the Service have ongoing efforts to survey for and, as opportunities may arise, capture additional purebred animals from any remaining occupied sites so that they can be included in the captive breeding program and/or translocated directly to one or more recovery emphasis areas. Any future capture and translocation operations would be conducted pursuant to WDFW's existing recovery permit. Securing additional purebred Columbia Basin animals for the captive breeding program could improve the overall recovery outlook for the population, and was an important consideration during development of the recovery actions prescribed by the Draft Recovery Plan. Currently, the number of additional Columbia Basin pygmy rabbits considered appropriate to remove from the wild is 30. The actual number of additional Columbia Basin pygmy rabbits that may be appropriate to remove from the wild and/or translocate between occupied sites will be continually reassessed if and when any additional purebred animals are located and secured for the captive breeding program.

Genetics Management: In 2000, WDFW began genetic analyses of pygmy rabbit populations from Washington, Idaho, Montana, and Oregon (WDFW 2001b). Results of the analyses indicated that the Columbia Basin pygmy rabbit is genetically distinct from, and has reduced genetic diversity compared with, other pygmy rabbit populations. Analyses also indicated that the genetic diversity of the Columbia Basin pygmy rabbit in the wild had been declining for at least 50 years, and that the average theoretical genetic relatedness among the founding captive individuals was between that of full and half siblings (i.e., individuals in the last known wild population were closely related). Furthermore, the genetic diversity of the captive population continued to decline over the first two years of the program. By 2003, the captive, purebred portion of the Columbia Basin pygmy rabbit population was experiencing an unacceptable loss of genetic diversity as a result of inbreeding and genetic drift.

Due to the poor outlook for pure Columbia Basin pygmy rabbit breeding efforts, WDFW undertook efforts to intercross Columbia Basin pygmy rabbits with Idaho pygmy rabbits during the 2003 breeding season (WDFW 2003). The initial intercross efforts were closely coordinated with the Service, followed recommendations of a multi-party Science Team convened by WDFW, and were undertaken to better assess the full range of possible conservation measures that could be pursued for the Columbia Basin pygmy rabbit. Following further coordination with the Service, Science Team, and Recovery Team, WDFW broadened the scope of the intercross strategy beginning in 2004 to address "genetic restoration" of the Columbia Basin pygmy rabbit (WDFW 2006).

Genetic restoration represents a comprehensive management strategy that explicitly addresses levels of gene flow from a donor to a recipient population and the interrelated objectives of eliminating inbreeding depression, increasing levels of potentially adaptive genetic variation, and avoiding or minimizing the potential for outbreeding depression (Hedrick 2005). In general terms, such a management strategy involves an increase in fitness of a genetically compromised population through intercrossing with a more genetically diverse donor population. Efforts to affect and/or document genetic restoration have been undertaken for isolated populations of various wild taxa (Tallmon *et al.* 2004). This phenomenon has also been widely documented in

a variety of animals and plants under experimental settings and for numerous domesticated animal breeds and plant varieties (Vogt *et al.* 1993, Richards 2000, Hartwell 2003, Tallmon *et al.* 2004, Northcutt *et al.* 2004, Waite *et al.* 2005, Dalton 2005).

The intercross strategy for the Columbia Basin pygmy rabbit has been conducted in a scientifically controlled and approved manner following a detailed captive breeding and genetics management plan developed by WDFW in 2004, and which has been updated annually (WDFW 2006). The Service has adopted the intercross breeding strategy as a key component of Federal recovery efforts for the Columbia Basin pygmy rabbit (USFWS 2006b). There are three main aims of the intercross breeding strategy, which are: 1) conserve all of the remaining unique genetic characteristics of the Columbia Basin pygmy rabbit (i.e., minimize genetic drift); 2) ensure that the Columbia Basin pygmy rabbit population contains enough genetic diversity to remain viable for the foreseeable future (e.g., minimize inbreeding); and 3) ensure that the unique genetic characteristics of the Columbia Basin pygmy rabbit do not become attenuated through over-representation of genetic material from foreign pygmy rabbit populations (i.e., minimize the potential for outbreeding depression).

Results of the captive breeding program to date indicate that the intercross pygmy rabbits have markedly increased reproductive success compared to the purebred Columbia Basin animals (WDFW 2006; R. Saylor, WSU, pers. comm. 2006), and there are indications that the general immune response of the intercross animals is superior to that of the purebred Columbia Basin pygmy rabbits (Harrenstien *et al.* 2006). These results suggest that, at least in the near term, the captive breeding program is succeeding in reducing or eliminating inbreeding depression in the Columbia Basin pygmy rabbit.

With regard to genetic restoration of the Columbia Basin pygmy rabbit, the captive breeding program is at least succeeding in achieving appropriate genetic indicators of minimizing genetic drift, increasing potentially adaptive genetic variation, and avoiding or minimizing the potential for outbreeding depression. However, it is currently unknown if the documented improvements in reproductive success and general immune response, among other possible indications, can ultimately translate into successive generations (i.e., improved population fitness). To what extent the more comprehensive objectives of genetic restoration may be achieved by the program will be further addressed based on results of future captive-breeding seasons and the performance of captive-bred Columbia Basin pygmy rabbits following their release to the wild.

Currently, proposed measures to recover the Columbia Basin pygmy rabbit in the wild include release of captive-bred progeny with at least 75% Columbia Basin ancestry (USFWS 2006b). This anticipated level of intercrossing is based on the results of the captive breeding program and genetics management investigations to date. Achieving intercross levels greatly exceeding 75% may be very difficult, time consuming (i.e., require multiple breeding seasons), and provide little or no additional benefit given the available breeding scenarios. For example, the genetic indicators decline dramatically if only the captive animals with greater than 75% Columbia Basin ancestry are considered, and the values for these animals are roughly equal to those of the founding purebred animals. However, the genetic indicators increase significantly when the captive animals with 75% Columbia Basin ancestry are included, with relatively little further improvements gained by

considering the captive animals with less than 75% Columbia Basin ancestry (Warheit 2006).

As of November 1, 2006, only 3 purebred Columbia Basin pygmy rabbits remained in captivity, with the balance of the captive population made up of 115 intercross animals, 104 of which represent at least 75% Columbia Basin ancestry.

Reintroduction: A total of forty-two captive-bred Idaho pygmy rabbits were experimentally released into suitable habitats in southeastern Idaho between August 2002 and February 2004 (Westra 2004). Results of these studies included indications of the movement patterns, vulnerability to predation, habitat use, and over-winter survival of captive-bred pygmy rabbits following their release. Successful reproduction in the wild by the captive-bred Idaho pygmy rabbits was also confirmed during the 2003 breeding season.

A key, near-term recovery objective for the Columbia Basin pygmy rabbit is to release captive-bred animals to suitable sites within the population's historic distribution to begin the process of its recovery in the wild (USFWS 2006c). Any such suitable site must be large enough and contain a sufficient quantity and quality of shrub-steppe habitat to support a viable subpopulation. These sites, which are referred to as recovery emphasis areas, will be actively managed to help conserve the Columbia Basin pygmy rabbit in the wild and represent areas where long-term recovery criteria are to be attained. Recovery emphasis areas are managed, in whole or in part, by WDFW, certain willing Participants to the Agreement, and involved Federal agencies.

To date, two recovery emphasis areas have been identified, one in the central Moses Coulee area of southern Douglas County and one in the Beezley Hills area of northern Grant County, Washington (Figure 1). Current conservation partners managing the recovery emphasis areas in cooperation with the Service and WDFW include The Nature Conservancy (TNC), Mr. Peter Lancaster, and the U.S. Bureau of Land Management (USBLM). Portions of the remaining shrub-steppe habitat throughout the population's historic distribution are administered by various Federal agencies, WDFW, and non-governmental conservation interests. Conservation measures for the Columbia Basin pygmy rabbit may also be considered in future management programs on these lands, including the identification of additional recovery emphasis areas (USFWS 2006c).

Intervening properties outside of recovery emphasis areas, while they may not be actively managed to conserve the Columbia Basin pygmy rabbit, may nevertheless contribute to recovery efforts. Any such property that could be voluntarily managed by a non-Federal and non-WDFW land owner or manager to provide a net conservation benefit to the population will be considered for inclusion under the Agreement.

Researchers at WSU, through coordination with the Service, WDFW, Science Team, and Recovery Team, have developed a reintroduction plan that details procedures for releasing and monitoring captive-bred Columbia Basin pygmy rabbits (Sayler *et al.* 2006). Specific, near-term objectives and projected time frames for initial reintroduction and/or augmentation efforts are identified in the Draft Recovery Plan (USFWS 2006c).

B. Purpose and Need

1. Purpose

The purpose of the proposed Agreement is to facilitate collaboration between the Service, WDFW, and prospective Participants to voluntarily implement conservation measures to benefit the Columbia Basin pygmy rabbit. The purpose of issuing Permits is to authorize incidental take of Columbia Basin pygmy rabbits that are above the “baseline” conditions of Participants’ enrolled properties and, in conjunction with the Agreement and individual Site Plans, to provide Participants with regulatory assurances in exchange for their contributions to recovery. Conceptually, baseline represents the number of Columbia Basin pygmy rabbits on a given property at the time it is enrolled under the Agreement. In practice, baseline is typically expressed as “population estimates and distribution” of the covered species or “habitat characteristics and determined area that sustain seasonal or permanent use” by the covered species on enrolled property.

2. Need

The proposed Agreement and issuance of Permits are needed to promote recovery of the Columbia Basin pygmy rabbit. In addition, the proposed Federal actions are needed to provide eligible land owners and managers with regulatory assurances against future land-use restrictions potentially resulting unauthorized incidental take of Columbia Basin pygmy rabbits on their enrolled property. Communications with interested land owners and managers have demonstrated that they are receptive to having Columbia Basin pygmy rabbits on their property and would allow access to their land for conducting surveys and monitoring, but only with regulatory assurances. The net conservation benefits expected from implementation of the Agreement and issuance of Permits include the following: 1) appropriate habitats would be maintained on enrolled properties and be available for use by Columbia Basin pygmy rabbits released to recovery emphasis areas; 2) habitats on enrolled properties would facilitate dispersal of newly released Columbia Basin pygmy rabbits and enhance connectivity of recovery emphasis areas; 3) new subpopulations of Columbia Basin pygmy rabbits may form on enrolled properties through natural population expansion; 4) additional purebred Columbia Basin pygmy rabbits may be located on properties being considered for enrollment and be secured for captive breeding and/or translocation efforts, which would improve the overall recovery outlook for the population; 5) monitoring and future collection of biological information concerning the Columbia Basin pygmy rabbit (e.g., dispersal, survival, productivity) would be improved through cooperative management efforts on enrolled properties; 6) research and adaptive management for the Columbia Basin pygmy rabbit would be made more comprehensive if implemented at a broader scale through facilitated access to enrolled properties; and 7) successful implementation of cooperative, voluntary conservation measures would increase public awareness and support for Columbia Basin pygmy rabbit recovery efforts.

C. Scoping

Discussions have been held with various State and Federal agencies, local government officials,

industry groups, and other stakeholders with interest in the Service's proposed actions. The Service held public meetings to discuss development of the Agreement, anticipated issuance of Permits, and other recovery planning measures for the Columbia Basin pygmy rabbit on June 29, 2005, September 26 and 28, 2005, and May 17, 2006. Primary sponsors of these public meetings included the Washington Wheat Growers Association, Washington Cattlemen's Association, the Douglas County and Grant County Commissioners, and potentially affected land owners and managers within five miles of a recovery emphasis area. The Service has also held or attended numerous other open meetings that addressed recovery planning for the Columbia Basin pygmy rabbit, the proposed Agreement, and anticipated issuance of Permits. Primary sponsors of these other meetings included WDFW, the Foster Creek Conservation District, Washington Department of Natural Resources, USBLM, TNC, individual land owners and managers, the Science Team, and the Recovery Team.

D. Decisions to be Made by Responsible Official

The Service will decide whether or not to implement the Agreement and to issue associated Permits in accordance with section 10(a)(1)(A) of the Act. To implement the Agreement and issue Permits, the Service must find that:

1. Implementation of the Agreement and issuance of Permits are reasonably expected to result in net conservation benefits to the Columbia Basin pygmy rabbit.
2. Take of the Columbia Basin pygmy rabbit authorized by the Permits would be incidental to otherwise lawful activities and would be in accordance with the measures prescribed by the Agreement and associated Site Plans.
3. Implementation of the Agreement and issuance of Permits would not jeopardize the continued existence of the Columbia Basin pygmy rabbit.
4. The Agreement complies with all other requirements of the Service's Safe Harbor Policy (USFWS 1999).

II. ALTERNATIVES

Based on the issues raised, follow-up discussions, and other associated input resulting from scoping (see above), two alternatives for this EA were developed and are considered below, which are a "no-action" alternative and a "preferred" alternative (i.e., the proposed actions).

Other alternatives that were considered to try to meet the combined needs of the Service, WDFW, and interested land owners and managers included development of a programmatic agreement with a single "master" permit holder, development of "batched" agreements to include multiple interested parties prior to issuance of a permit for each agreement, development of individual agreements for each prospective participant, permit(s) issued pursuant to section 10(a)(1)(B) of the Act, and addressing regulatory responsibilities pursuant to other measures prescribed by the Act (e.g., sections 6, 7, and 9). These other alternatives were not considered

feasible for various reasons, including: 1) their implementation would be hampered by funding, administrative, or legal constraints of the agencies; 2) they would be excessively cumbersome and/or ineffectual for prospective participants; 3) they would not meet the requirements of the Service's Safe Harbor Policy; 4) they would not necessarily provide conservation benefits to the Columbia Basin pygmy rabbit; and 5) they would not meet legal requirements pursuant to the Act. These other alternatives are not considered further in this EA.

A. No-Action Alternative

Under the no-action alternative, recovery efforts for the Columbia Basin pygmy rabbit would continue under existing management conditions and authorities. No Permits would be issued in association with a single Agreement, which would likely result in the Service's inability to efficiently authorize incidental take of Columbia Basin pygmy rabbits or to provide regulatory assurances to land owners or managers in exchange for their management contributions consistent with section 10(a)(1)(A) of the Act. As a result, if recovery efforts progress and Columbia Basin pygmy rabbits come to occupy non-Federal and non-WDFW properties within the population's historic distribution, affected land owners and managers would incur increased management responsibilities and/or regulatory liability associated with the potential for unauthorized take pursuant to section 9 of the Act. In addition, the conservation benefits to the Columbia Basin pygmy rabbit that would be expected through voluntary, cooperative management efforts on eligible properties would not be fully realized under the no-action alternative. Finally, in the absence of implementing proactive, cooperative, and flexible management in accordance with the Act, as prescribed by the Agreement, public support for Columbia Basin pygmy rabbit recovery efforts would likely decline.

B. Preferred Alternative

Under the preferred alternative, the Agreement would be implemented and Permits would be issued to eligible land owners and managers within the historic distribution of the Columbia Basin pygmy rabbit. The Agreement is a "template" in that it establishes general guidelines and identifies minimum management responsibilities for non-Federal and non-WDFW land owners and managers to participate in the Agreement. It also identifies the overall area covered by the Agreement (covered area). In addition, the Agreement documents background biological information on the Columbia Basin pygmy rabbit, ongoing conservation actions and Federal recovery objectives for the species, expected net conservation benefits, and the types of land use activities and eligible properties covered by the Agreement. With implementation of the Agreement, the documentation needs and approval process to enroll Participants will be significantly streamlined as the information and completed administrative measures encompassed by the Agreement can be referenced. By streamlining the process and minimizing the time and resources needed to complete administrative requirements, the Service and WDFW anticipate that more eligible land owners and managers will be likely to voluntarily enroll their property under the Agreement and implement conservation measures, which will enhance State and Federal recovery efforts for the Columbia Basin pygmy rabbit.

The Service and WDFW believe that implementation of the Agreement and issuance of the

associated Permits would be advantageous for land owners and managers who currently have little or no incentive to encourage a federally listed species to occupy their property. This is primarily because when a listed species inhabits non-Federal property, the land owner or manager has responsibilities under the Act to avoid take of the species. Depending on the size of the land owner's or manager's property and their existing or proposed land-use activities, these responsibilities can sometimes limit, modify, or delay management alternatives. To minimize these responsibilities, land owners and managers sometimes refrain from undertaking actions that would maintain or enhance habitats that could benefit the listed species, which reduces the likelihood that their land would be occupied by the species. However, many land owners and managers would be willing to undertake or allow actions that could benefit the species on their property if the possibility of future land-use restrictions could be reduced or eliminated. The Service and WDFW believe that, with such assurances, land owners and managers within the historic distribution of the Columbia Basin pygmy rabbit would be willing to contribute to recovery of the population. Implementation of the proposed Agreement and issuance of Permits are designed to provide these assurances, and would encourage land owners and managers to assist with ongoing State and Federal recovery efforts.

The Agreement clarifies the management responsibilities and expectations of the Service, WDFW, and prospective Participants. With its implementation, the Agreement will serve as the basis for the Service to issue Permits to Participants pursuant to the Act. To receive a Permit, each Participant would need to complete and submit to the Service a Federal Fish and Wildlife Permit Application Form. In addition to submitting a Permit application, each prospective Participant to the Agreement would also need to develop a Site Plan in cooperation with the Service and WDFW. Each Site Plan would identify the specific property to be enrolled and document the baseline conditions, existing and proposed future land-use activities, and agreed-upon conservation measures that would be expected to benefit the Columbia Basin pygmy rabbit on the enrolled property. Each prospective Participant and the Service would need to agree upon and sign a completed Site Plan, which would remain within the scope of, and tier to, the Agreement. As Permits are issued, Participants would be provided with regulatory assurances and would be authorized to incidentally take Columbia Basin pygmy rabbits that are above the baseline conditions of their enrolled property.

If additional purebred Columbia Basin pygmy rabbits are located on intervening properties (i.e., outside of recovery emphasis areas) during future baseline surveys, the intent would be to capture and remove them, up to the current limit of 30, so that they can be included in the captive breeding program and/or translocated to a recovery emphasis area (see Conservation Measures, above). Any such capture and removal efforts would be coordinated with the prospective Participant. Any Columbia Basin pygmy rabbits that are found during surveys and subsequently removed would not be counted toward the Participant's baseline conditions (i.e., the estimated number of active burrows present would be adjusted accordingly). With a prospective Participant's permission, capture operations would be carried out by qualified personnel under WDFW's current Federal Recovery Permit (USFWS 2003b).

Existing and, as sufficiently known, future land-use activities to be covered by the Agreement include, but are not limited to, those associated with ranching, farming, recreation, residential

upkeep, and conservation programs for the covered species. Some of these activities could involve the direct management of shrub-steppe habitat, including maintenance, enhancement, restoration, and conversion. The specific land-use activities on property to be covered by the Agreement would be detailed in each prospective Participant's Site Plan. The only take that would be authorized by the Permits issued in association with the Agreement is take that is above the baseline conditions of enrolled properties and that is incidental to otherwise lawful activities. It is important to note that any such take may or may not ever occur. In addition, it is unlikely that the Columbia Basin pygmy rabbit would fully benefit from management of the properties covered by the Agreement except for the voluntary involvement of Participants.

The area covered under the Agreement encompasses the historic distribution of the Columbia Basin pygmy rabbit, which totals approximately 2,650,000 acres. However, eligible properties primarily include those that have shrub-steppe habitat and/or soil conditions that may be capable of supporting the species, either currently or in the foreseeable future. These potentially occupied areas and adjacent properties that may receive intermittent use by Columbia Basin pygmy rabbits, such as for exploratory behavior or dispersal between suitable habitats, total approximately 750,000 acres (Figure 1). Furthermore, implementation of the Agreement would be conducted on a priority-driven basis, with emphasis being given to eligible land owners and managers on or within five miles of a recovery emphasis area (Figure 1), and those whose properties may currently harbor purebred Columbia Basin pygmy rabbits. Therefore, in the near-term (up to 10 years), at most approximately 160,000 acres of eligible property might be expected to be directly affected by implementation of the Agreement and issuance of Permits, which amounts to roughly 6% of the covered area. As the Service's and WDFW's respective workloads and resources allow, and as near-term recovery objectives are accomplished, other prospective Participants within the historic distribution of the Columbia Basin pygmy rabbit would be addressed. The specific properties being considered for enrollment under the Agreement will be detailed in the Site Plans of prospective Participants.

III. AFFECTED ENVIRONMENT

A. Geography

Elevations within the covered area range from 370 feet above sea level at the Columbia River in northern Benton County to over 3,500 feet on the Waterville Plateau in Douglas County. The northern portion of the area has been heavily influenced by glacial activity and contains several large and numerous smaller coulees (i.e., ravine networks). Soils are typically thinner here than elsewhere in the area and contain numerous rocky outcrops. The Columbia River and its system of palisades and steep draws bound the western edge of the area. The central portion of the area is dissected by three east-west oriented ridge systems, which are the Beezley Hills to the north, the Frenchman Hills in the central region, and the Saddle Mountains to the south. The area between these ridge systems is generally flat to gently rolling and contains several dune complexes. The eastern portion of the area contains moderately rolling slopes, and several coulees transect the region, draining to the southwest. Finally, in the southern portion, the area is flat to gently rolling along the Columbia River, but rises into the Rattlesnake Hills at its extreme southern extent.

The Columbia Basin ecosystem lies within the rain shadow of the Cascade Range to the west and represents the northern-most extent of the semi-arid, shrub-steppe biome of the western United States. Precipitation is relatively light, ranging from roughly 7 inches in the southwest and lower elevations to over 12 inches in the northeast and higher elevations. Approximately 65% of the precipitation falls from October through March. Average minimum and maximum daily temperatures are 20° and 35° Fahrenheit (F) in January and 55° and 88° F in July (USFWS 1995).

B. Vegetation

Native vegetation communities within the covered area include a variety of arid and semi-arid shrub-steppe habitats, as well as sparsely scattered wetland and riparian habitats. In addition to naturally occurring vegetation, large expanses of irrigated crop fields and considerably more wetland and riparian habitat have been created as a result of the federally-sponsored Columbia Basin Irrigation Project that draws water from the Columbia River at Grand Coulee Dam (U.S. Bureau of Reclamation (USBR) 1998). Large dry-land (i.e., non-irrigated) agricultural fields and smaller fields irrigated by private wells also occur within the covered area, especially in the northern and eastern portions.

Upland Habitats: Daubenmire (1988) classified the various native shrub-steppe habitat types of the Columbia Basin ecosystem into zonal (i.e., climatic) and edaphic (i.e., soil) series, as well as other unique types of plant associations including those found on talus slopes, cliffs, and dunes. The zonal habitat types occur on deep loamy soils and represent climatic climax communities. The edaphic habitat types are found within these zonal communities and differentiate at distinct soil type boundaries and/or gradate along geologic and climatic influences.

Nearly the entire covered area is within the big sagebrush (*Artemisia tridentata*) - bluebunch wheatgrass (*Agropyron spicatum*) zonal habitat type. This habitat type consists of four well defined vegetation layers. The most prominent layer consists of various shrub species, principally big sagebrush, that are intermixed with a second layer comprised of a variety of tall perennial grasses, principally bluebunch wheatgrass. The third layer consists of low-lying perennial and annual grasses and forbs, which are usually less than 4 inches in height. Finally, the fourth vegetative layer is made up of a thin, fragile crust, called the cryptogam, which occurs directly on the surface of the soil. Various lichen, moss, and liverwort species comprise this layer, which has important influences with regard to erosion susceptibility, moisture retention, and nutrient cycling. A small fraction of the covered area, in the extreme northern portion, is within the threetip sagebrush (*A. tripartita*) - Idaho fescue (*Festuca idahoensis*) zone. This habitat type differs primarily by the substitution of the dominant shrub and grass species, but otherwise has similar characteristics to that of the big sagebrush - bluebunch wheatgrass zone.

There are numerous edaphic habitat types throughout the covered area. These communities are found on sites ranging from very thin, rock outcrop-dominated soils to deep, well drained sandy soils. Certain of these plant communities are associated with one another where there are gradations in soil condition. As a result, there are often extensive areas of overlap and intermixing of the edaphic habitat types. As soils range from thin and rocky to deep and sandy, a

progression from the stiff sagebrush (*A. rigida*) - Sandberg's bluegrass (*Poa sandbergii*) to the antelope bitterbrush (*Purshia tridentata*) - indian ricegrass (*Oryzopsis hymenoides*) communities occurs. There are several fairly common, intermediate edaphic habitat types associated with these broad progressions in soil condition. These intermediate habitat types include big sagebrush - Sandberg's bluegrass, antelope bitterbrush - bluebunch wheatgrass, big sagebrush - needle and thread grass (*Stipa comata*), and antelope bitterbrush - needle and thread grass.

Still other edaphic habitat types are comparatively scarce and occur on small microsites where appropriate local conditions prevail. Several of these scarce habitat types within the covered area represent "artificial" plant communities, which have been created largely as a result of human influences. There are few pure stands of these uncommon habitat types, as described by Daubenmire (1988), and most are closely associated with the big sagebrush - bluebunch wheatgrass zone. These scarce habitat types include spiny hopsage (*Atriplex spinosa*) - Sandberg's bluegrass, snowy buckwheat (*Eriogonum niveum*) - Sandberg's bluegrass, winterfat (*Eurotia lanata*) - Sandberg's bluegrass, and sand dropseed (*Sporobolus cryptandrus*) - Sandberg's bluegrass.

Cliff and talus plant communities are found along the Columbia River, Beezley and Frenchman Hills, Saddle Mountains, and most of the major coulees within the covered area. These habitats are relatively small and localized where they occur. Dune habitats are also relatively localized and primarily occur within the central and southern portions of the area in the flat to gently rolling lowlands between the major ridge systems.

Cheat grass (*Bromus tectorum*), an exotic annual grass from Eurasia, has become very widespread throughout the Columbia Basin ecosystem. In some areas it has replaced the native grass species amid the native shrubs and forbs, and can persist indefinitely within these habitat types (Cassidy 1997). In other areas, shrubs are completely absent and cheat grass is essentially the only grass species that occurs. Such sites now represent newly formed grassland communities in portions of the covered area (USFWS 1995).

Wetland and Riparian Habitats: Historic wetland and riparian habitats within the covered area include Soap and Moses Lakes, Crab and Rocky Ford Creeks, and various other smaller or seasonal seeps, creeks, and potholes. In addition, the Columbia River borders the covered area along the western margin and transects the southern portion. Since the inception of Grand Coulee Dam and the accompanying, large-scale irrigation project, numerous other wetland and riparian habitats have been created within the covered area by impoundments, rising water tables, seepage, and irrigation activities. The more prominent of these new areas include Banks, Park, Blue, Alkali, Lenore, Billy Clapp, Brook, Black, Frenchman Hills, and Eagle Lakes, Potholes and Scootney Reservoirs, and Winchester, Frenchman Hills, and Esquatzel Coulee Wasteways. Hundreds of canals, irrigation ponds, and secondary wasteways also contribute significantly to the wetland and riparian habitats of the covered area.

C. Fish and Wildlife

Three broad categories of habitat support the fish and wildlife species within the covered area,

which are shrub-steppe, agricultural lands, and wetland/riparian sites. Many fish and wildlife species are considered generalists and can make use of a variety of habitat types, whereas other species, including the Columbia Basin pygmy rabbit, are considered specialists and have adapted to comparatively specific habitat requirements. Specialists often depend on just one, or perhaps a few different habitat types to supply their needs. The various habitat requirements of individual species can also shift dramatically between seasons and even life stages. The fish and wildlife species found within the covered area represent this full array of assorted life history strategies.

Shrub-steppe habitat types provide food, cover, and refuge for many wildlife species. In addition to Columbia Basin pygmy rabbits, typical wildlife species that occur in these areas include sage thrashers (*Oreoscoptes montanus*), sage sparrows (*Amphispiza belli*), black-tailed jackrabbits (*Lepus californicus*), and mule deer (*Odocoileus hemionus*). In areas with rocky outcrops or cliffs, bobcats, bushy-tailed woodrats (*Neotoma cinerea*), rattlesnakes (*Crotalus viridis*), rock wrens (*Salpinctes obsoletus*), and golden eagles (*Aquila chrysaetos*) may also be present. In predominantly grassland areas, grasshopper sparrows (*Ammodramus savannarum*), long-billed curlews (*Numenius americanus*), and burrowing owls (*Athene cunicularia*) may occur.

The agricultural lands within the covered area consist of two general types, irrigated and non-irrigated crop fields. Most of the non-irrigated lands are farmed to produce winter wheat and other small-grain crops, such as barley. A wide variety of crops are grown on the lands receiving irrigation and include wheat, alfalfa, corn, beans, potatoes, mint, apples, and grapes. Typical wildlife species that occur in the agricultural areas include Great Basin pocket mice (*Perognathus parvus*), deer mice (*Peromyscus maniculatus*), northern pocket gophers (*Thomomys talpoides*), striped skunks (*Spilogale putorius*), meadowlarks (*Sturnella neglecta*), horned larks (*Eremophila alpestris*), and barn swallows (*Hirundo rustica*).

Numerous avian, terrestrial, and aquatic species use the wetland and riparian habitats within the covered area. Typical species representative of these habitats include mallards (*Anas platyrhynchos*), Canada geese (*Branta canadensis*), redwinged blackbirds (*Agelaius phoeniceus*), beavers (*Castor canadensis*), muskrats (*Ondatra zibethicus*), walleye (*Stizostedion vitreum*), yellow perch (*Perca flavescens*), and black crappie (*Pomoxis nigromaculatus*).

Settlement of the Columbia Basin has also had significant impacts on the assortment and relative abundance of certain upland species, such as the coyote and common raven, which have done well with the land use changes in the region and their populations have likely increased significantly. A number of exotic species have also become established within the covered area, including ring-necked pheasants (*Phasianus colchicus*), starlings (*Sturnus vulgaris*), largemouth bass (*Micropterus salmoides*), and carp (*Cyprinus carpio*).

D. Land Ownership and Use

Prior to European settlement and wide-spread development of agricultural fields within the Columbia Basin ecosystem, nearly the entire region consisted of native shrub-steppe habitats.

Presently, as much as 70% of these original native habitats within the covered area have been converted for various uses, including agricultural, residential, industrial, and urban developments (Dobler *et al.* 1996). In addition, most of the remaining undeveloped land within the covered area is subject to a variety of other human influences, including livestock grazing, recreation, altered fire frequencies, and exotic species invasion. Much of the remaining undeveloped land within the covered area is located on public properties managed by various Federal and State agencies.

Major Federal lands within the covered area include the Hanford Reach National Monument and the Saddle Mountain and Columbia National Wildlife Refuges managed by the Service; scattered ownership within the Jameson Lake, Douglas Creek, and Saddle Mountains Management Areas managed by USBLM; scattered ownership associated with the Columbia Basin Irrigation Project managed by USBR; and the Hanford Site managed by the U.S. Department of Energy. Major State lands within the covered area include the Sagebrush Flat, Gloyd Seeps, Potholes, and Crab Creek Wildlife Areas managed by WDFW; and scattered ownership managed by the Washington Department of Natural Resources (WDNR). Most of the remaining area is in private ownership and managed primarily for irrigated and dry-land crop production, livestock operations, and urban and rural developments (e.g., housing, commercial / industrial facilities, transportation and utility corridors).

The covered area encompasses a number of towns in central Washington, of which the larger ones, with approximate population sizes based on 2006 census estimates, include Moses Lake (15,000), Ephrata (7,000), Othello (6,000), and Quincy (5,000). Portions of Interstate Highway 90, U.S. Highway 2, several state highways, and numerous county and local roads occur within the covered area. No large urban centers or major highways occur within five miles of the two recovery emphasis areas.

IV. ENVIRONMENTAL EFFECTS OF ALTERNATIVES

The following analysis considers the potential environmental effects of the no-action and preferred alternatives. There are no construction projects or other direct environmental effects associated with the proposed Federal actions. Therefore, all of the effects identified below are indirect effects that may be associated with implementation of the Agreement and issuance of Permits. Resources that would not be affected with regard to the alternatives, and therefore are not further addressed in this EA, include water quantity and quality, air quality, geology and soils, mineral resources, noise and aesthetics, public health and services, housing, transportation, hazardous materials, environmental justice, migratory birds, and sensitive native plants and vegetation communities, other than shrub-steppe.

A. No-Action Alternative

A decision not to implement the Agreement and issue associated Permits would result in the continuation of existing management conditions and authorities. The following assessments of the potential environmental effects from the no-action alternative assume future conditions in the absence of the proposed Federal actions.

1. Shrub-steppe Habitat and Columbia Basin Pygmy Rabbit Recovery

Under the no-action alternative, shrub-steppe habitats on lands under Federal and WDFW jurisdiction within the covered area would continue to be managed to promote the recovery of the Columbia Basin pygmy rabbit in accordance with current management direction. Certain conservation partners, including TNC and the Lancaster family, would likewise continue to manage key portions of their lands as recovery emphasis areas and to contribute to State and Federal recovery efforts for the Columbia Basin pygmy rabbit. Separate agreements would need to be developed with these land owners and managers to address the potential for incidental take that could result from their voluntary conservation measures and associated management activities. Under the no-action alternative, the Service and WDFW would also continue to pursue other management actions described in the Draft Recovery Plan (USFWS 2006c), including development of individual management agreements with interested land owners and managers of intervening properties outside of recovery emphasis areas. However, the amount, quality, and availability of suitable shrub-steppe habitats on these properties would likely decline and the connectivity of recovery emphasis areas would diminish if satisfactory agreements could not be reached. In addition, it is likely that other potential benefits to the Columbia Basin pygmy rabbit (e.g., facilitated access to enrolled properties to survey and monitor, securing additional purebred animals for captive breeding efforts, voluntary implementation of adaptive management measures) would not be fully realized if regulatory assurances could not be provided through proactive, cooperative, timely, and efficient management on intervening properties.

2. Other Wildlife Species of Concern

Other than the Columbia Basin pygmy rabbit, no federally listed fish or wildlife species would be expected to occur on or within five miles of the recovery emphasis areas. However, two Federal candidate species for listing under the Act do occur in shrub-steppe habitats on or within five miles of the recovery emphasis areas, which are the Washington ground squirrel (*Spermophilus washingtoni*) and the Columbia Basin population of greater sage grouse (*Centrocercus urophasianus*). The no-action alternative would not be expected to significantly affect the overall conservation status of these candidate species.

3. Cultural and Historical Resources

The no-action alternative would not be expected to have any impact on cultural or historical resources relative to the requirements of the National Historic Preservation Act (NHPA). This is because all non-Federal and non-WDFW land owners and managers whose properties do not currently harbor Columbia Basin pygmy rabbits can, in relation to the NHPA, legally conduct any type of ground-disturbing activity on their property. In addition, management activities conducted pursuant to Federal or WDFW jurisdiction relative to recovery efforts for the Columbia Basin pygmy rabbit would fall under other cultural and historical resource compliance requirements under the no-action alternative (e.g., future NEPA or NHPA assessments).

4. Recreation

The no-action alternative could result in unauthorized take of Columbia Basin pygmy rabbits in association with dispersed recreational activities (e.g., hunting, wildlife viewing, off-road vehicle use) within the covered area. To address this potential risk under the no-action alternative, increased monitoring and enforcement measures may be required and/or it may be necessary to impose use restrictions during specific periods or at key locations where Columbia Basin pygmy rabbits are present.

5. Socioeconomic Effects

Under the no-action alternative, Federal and State recovery actions for the Columbia Basin pygmy rabbit, along with their associated costs and work loads, would continue under existing management conditions and authorities. However, the Service would be unable to efficiently authorize incidental take of Columbia Basin pygmy rabbits or to provide regulatory assurances that the possibility of future land use restrictions would be reduced or eliminated for non-Federal and non-WDFW land owners and managers. In turn, potentially affected land owners and managers may be reluctant to allow access to their property and may be unwilling to maintain suitable habitat or otherwise undertake measures that could benefit the Columbia Basin pygmy rabbit on their property. Regardless, if Columbia Basin pygmy rabbits come to occupy non-Federal and non-WDFW properties as a result of recovery efforts, affected land owners and managers would incur increased management responsibilities and/or regulatory liability associated with the potential for unauthorized take pursuant to section 9 of the Act. As a result, the no-action alternative could negatively impact existing and proposed future land-use activities within the historic distribution of the Columbia Basin pygmy rabbit and diminish public support for Federal and State recovery efforts.

6. Cumulative Effects

The covered area is subject to continuing development pressures, which will likely result in further loss of shrub-steppe habitats for agricultural, residential, and industrial developments. In the absence of implementing proactive, cooperative, and voluntary conservation measures for federally listed species pursuant to the Act, these activities may increase if landowners and managers choose to undertake other land-use activities that would avoid or reduce their future liability for unauthorized take of Columbia Basin pygmy rabbits on their property. However, in light of other factors (e.g., market forces, human demographics), these potential impacts under the no-action alternative would not be expected to represent significant cumulative effects.

B. Preferred Alternative

1. Shrub-steppe Habitat and Columbia Basin Pygmy Rabbit Recovery

As with the no-action alternative, shrub-steppe habitats on lands under Federal and WDFW jurisdiction within the covered area would continue to be managed to promote the recovery of the Columbia Basin pygmy rabbit in accordance with current management direction under the

preferred alternative. In addition, certain conservation partners, including TNC and the Lancaster family, would continue to manage key portions of their lands as recovery emphasis areas and to contribute to State and Federal recovery efforts for the Columbia Basin pygmy rabbit. However, separate agreements would not need to be developed with these land owners and managers as their voluntary conservation measures and associated management activities could be covered under the Agreement. Under the preferred alternative, the Service and WDFW would also pursue other management actions described in the Draft Recovery Plan (USFWS 2006c), but the land-use activities of interested land owners and managers of intervening properties could likewise be covered under the Agreement. As a result, the amount, quality, and availability of suitable shrub-steppe habitats on these properties would be maintained or increase, and the connectivity of recovery emphasis areas would be improved. In addition, other potential benefits to the Columbia Basin pygmy rabbit (e.g., facilitated access to enrolled properties to survey and monitor, securing additional purebred animals for captive breeding efforts, voluntary implementation of adaptive management measures) could be fully realized as regulatory assurances could be provided through proactive, cooperative, and efficient management on intervening properties.

2. Other Wildlife Species of Concern

Under the preferred alternative, certain conservation measures implemented within the covered area (e.g., shrub-steppe habitat maintenance or enhancement, facilitated access for survey and monitoring) could provide some limited benefits to the Washington ground squirrel and the Columbia Basin population of greater sage grouse, two Federal candidate species for listing under the Act. However, potential benefits to these species associated with recovery efforts for the Columbia Basin pygmy rabbit would not be expected to significantly affect their overall conservation status.

3. Cultural and Historical Resources

As with the no-action alternative, conservation measures implemented on intervening properties would not be expected to have any impact on cultural or historical resources relative to the requirements of the NHPA. However, under the preferred alternative, certain management activities undertaken at recovery emphasis areas, and that are associated with the proposed actions, would result in surface disturbances or otherwise have the potential to affect the cultural or historical resources present. These activities could include construction of artificial burrows at specific sites where captive-bred animals would be released (Sayler *et al.* 2006), erecting livestock exclusion fencing, various habitat restoration efforts, and removal of old structures that may be used by avian or terrestrial predators and pose a threat to Columbia Basin pygmy rabbits in the immediate area (WDFW 1995).

A number of the near-term and future management activities conducted at recovery emphasis areas could be defined as the Area(s) of Potential Effects (APE) associated with compliance responsibilities under the NHPA. Currently, it is not possible to adequately define the APE for the proposed actions because site-specific information will not be developed under the Agreement, but rather would be included in the Site Plans of prospective Participants. However,

under the preferred alternative, any such management actions directly associated with recovery efforts for the Columbia Basin pygmy rabbit would be conducted pursuant to Federal or WDFW jurisdiction and would fall under other cultural and historical resource compliance requirements (e.g., future NEPA or NHPA assessments).

4. Recreation

Under the preferred alternative, incidental take of Columbia Basin pygmy rabbits that could occur in association with dispersed recreational activities, as authorized by Participants on properties they manage, would be covered by the Agreement and associated Permits. Some increased monitoring and enforcement measures and/or use restrictions during specific periods or at key locations may likewise be required to address the potential risk of unauthorized take of Columbia Basin pygmy rabbits on these properties. However, these protective measures would be conducted in cooperation with Participants and would require considerably fewer resources than might expected under the no-action alternative.

5. Socioeconomic Effects

As with the no-action alternative, Federal and State recovery actions for the Columbia Basin pygmy rabbit, along with their associated costs and work loads, would continue under existing management conditions and authorities. However, the Service would be able to efficiently authorize incidental take of Columbia Basin pygmy rabbits and provide regulatory assurances to non-Federal and non-WDFW land owners and managers that the possibility of future land use restrictions would be reduced or eliminated. In turn, potentially affected land owners and managers would likely allow access to their property and be willing to maintain suitable habitat or otherwise undertake measures that could benefit the Columbia Basin pygmy rabbit on their property. If Columbia Basin pygmy rabbits come to occupy non-Federal and non-WDFW properties, affected land owners and managers would not incur increased management responsibilities and/or regulatory liability associated with the potential for unauthorized take pursuant to section 9 of the Act. As a result, the preferred alternative would have minimal impacts to existing and proposed future land-use activities within the historic distribution of the Columbia Basin pygmy rabbit, and would increase public support for Federal and State recovery efforts.

6. Cumulative Effects

As with the no-action alternative, the covered area is subject to continuing development pressures, which will likely result in further loss of shrub-steppe habitats for agricultural, residential, and industrial developments. However, through implementation of proactive, cooperative, and voluntary conservation measures for federally listed species pursuant to the Act, these activities may decrease if landowners and managers choose to participate in the Agreement, and thus avoid or reduce their future liability for unauthorized take of Columbia Basin pygmy rabbits on their property. Nevertheless, in light of other factors (e.g., market forces, human demographics), these potential conservation benefits would not be expected to represent significant cumulative effects under the preferred alternative.

C. Summary and Comparison of Alternatives

A summary and comparison of the resources potentially affected under the no-action and preferred alternatives are provided in Table 1.

Table 1. Summary and Comparison of Alternatives

Resources Affected	No-Action Alternative	Preferred Alternative
Shrub-steppe Habitat and Columbia Basin Pygmy Rabbit Recovery	<ul style="list-style-type: none"> • Potential decline in quantity, quality, and availability of suitable shrub-steppe habitat and diminished connectivity of recovery emphasis areas. • Potential loss of other conservation benefits, including facilitated access to eligible properties, securing additional purebred animals for captive breeding, and adaptive management opportunities. 	<ul style="list-style-type: none"> • Likely to maintain or increase quantity, quality, and availability of suitable shrub-steppe habitats, and improve connectivity of recovery emphasis areas. • More likely to realize full range of other conservation benefits.
Other Wildlife Species of Concern	<ul style="list-style-type: none"> • No significant impacts anticipated. 	<ul style="list-style-type: none"> • Potential for minor benefits to Washington ground squirrel and Columbia Basin population of greater sage grouse, although significant affects to their conservation statuses not anticipated.
Cultural and Historical Resources	<ul style="list-style-type: none"> • No significant affects anticipated with regard to NHPA compliance responsibilities. 	<ul style="list-style-type: none"> • Potential for minor impacts, although Federal and WDFW compliance responsibilities would be addressed through future assessments.
Recreation	<ul style="list-style-type: none"> • Potential for increased monitoring, enforcement, and/or administrative actions to address risks from unauthorized take. 	<ul style="list-style-type: none"> • Some potential for increased monitoring, enforcement, and/or administrative actions, but incidental take would be authorized and associated workloads and costs likely considerably reduced.
Socioeconomic Effects	<ul style="list-style-type: none"> • Additional administrative workloads and costs to 	<ul style="list-style-type: none"> • Significant administrative and cost efficiencies.

Resources Affected	No-Action Alternative	Preferred Alternative
	<p>develop multiple agreements.</p> <ul style="list-style-type: none"> • Increased management responsibilities and/or liability for unauthorized take on non-Federal and non-WDFW properties. • General decline in public support for Federal and State recovery efforts. 	<ul style="list-style-type: none"> • Implementation of proactive, cooperative, and flexible management through voluntary enrollment. • General increase in public support for Federal and State recovery efforts.
Cumulative Effects	<ul style="list-style-type: none"> • Potential to increase development pressures and further lose native habitats, although impacts likely minor relative to other factors. 	<ul style="list-style-type: none"> • Potential decline in development pressures and loss of native habitats, although benefits likely minor relative to other factors.

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