Multi-Species Candidate Conservation Agreement with Assurances

Washington Ground Squirrel
Ferruginous Hawk
Loggerhead Shrike
Sage Sparrow

Signatories

Threemile Canyon Farms

The Nature Conservancy

Portland General Electric

U.S. Fish and Wildlife Service

Oregon Department of Fish and Wildlife

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Prepared by

David Evans and Associates
2100 SW River Parkway
Portland, Oregon 97201

August 2003

Multi-Species Candidate Conservation Agreement with Assurances

This agreement, effective and binding on the date of the last signature, is between Threemile Canyon Farms, The Nature Conservancy, Portland General Electric, the Oregon Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service.

Property Owner/Signatory: Threemile Canyon Farms
75906 Threemile Road
Boardman, OR 97818
(541) 481-9275
Representative: Martin Myers

Property Owner/Signatory: Portland General Electric
Boardman Plant
P.O. Box 499
Boardman, OR 97818
(541) 481-9356
Representative: Stephen Quennoz

Signatory: The Nature Conservancy
821 SE 14th Avenue
Portland, OR 97214
(503) 230-1221
Representative: Russell Hoeflich

Signatory: Oregon Department of Fish and Wildlife
Wildlife Division
2501 SW 1st Avenue, P.O. Box 59
Portland, OR 97207
(503) 872-5260
Representative: Kevin Blakely

Authorizing Agency/
Signatory: U.S. Fish and Wildlife Service
911 NE 11th Avenue
Portland, OR 97232
(503) 231-6118
Representative: Dave Wesley, Deputy Regional Director

The legal descriptions of the property covered by this agreement are contained in **Appendix A**.

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GLOSSARY OF TERMS

Adaptive Management: Adaptive management is a formal, systematic approach to learning from the outcomes of management actions, accommodating change and improving management.

Baseline: For the purposes of this document this term is used to describe current conditions, especially as they pertain to the Covered Species.

Buffer zone/Undeveloped buffer zone: The term "buffer zone" generally refers to the 250-foot buffer created by Threemile Canyon Farms to separate the Farm Conservation Areas from farming activities, which is illustrated in **Figure 2**. An "undeveloped buffer zone" (see definition of "Farm Conservation Areas) refers to the areas established around Covered Species (see definition of Covered Species) as a Conservation Commitment that allow for existing facilities and operations but prohibit potentially injurious human disturbances that could result in "take" of the species (see definition of "take").

Covered Activities: The types of activities that are covered by this Multi-Species Candidate Conservation Agreement for the Signatories. Activities that do not correspond to any of the Covered Activities are not covered by this Agreement and, should they impact a species listed under the Federal Endangered Species Act, will require separate Endangered Species Act compliance.

Covered Area: The area covered by this Multi-Species Candidate Conservation Agreement. Illustrated in **Figure 2**. This area includes the wholly-owned lands of Threemile Canyon Farms, including the area currently managed by The Nature Conservancy. Also includes the property owned and managed by Portland General Electric.

Covered Species: The species of wildlife covered by this Multi-Species Candidate Conservation Agreement. For this Agreement the Covered Species are the Washington ground squirrel (*Spermophilus washingtoni*), ferruginous hawk (*Buteo regalis*), loggerhead shrike (*Lanius ludovicianus gambeli*), and sage sparrow (*Amphispiza belli*).

Development Area: All areas of Threemile Canyon Farms that have been developed or otherwise utilized for agricultural and other uses, and those other lands that will be developed in the future. This excludes all lands in the Farm Conservation Areas.

Direct Impact: Impacts to individuals of the species.

Enhancement of Survival Permit: This is the permit that is issued by the U.S. Fish and Wildlife Service to the Permittees (see definition of Permittees) which authorizes the incidental take of the Covered Species (see definition of Covered Species), subsequent to the completion of a Candidate Conservation or Safe Harbor Agreement.

Farm Conservation Areas: Two distinct areas, totaling approximately 22,600 acres, permanently dedicated to conservation purposes by Threemile Canyon Farms. Includes the North and South Farm Conservation Areas.

Future Agricultural Area: Two areas, currently undeveloped, totaling approximately 2,560 acres and located in the southwest and the northeast portion of the Farm property. They are illustrated in **Figure 2**. In the future the Farm intends to develop this area for agricultural commodities.

Improve: When used in reference to a native community type or Covered Species habitat, the term means to restore the native plant community and/or habitat through weed control or other restoration methods.

Incidental take: Take that incidentally results from an otherwise lawful activity. (See definition of "**take.**")

Indirect impact: Impact to suitable habitat for a Covered Species that is currently unoccupied.

Insignificant: For the purposes of this document, insignificant is defined as not able to meaningfully measure, detect, or evaluate.

Maintain: When used in reference to a native community type or Covered Species habitat, maintain means to support the community by preventing development, minimizing harmful disturbances, and fire management.

Non-productive agricultural areas: There are approximately 9,500 acres of land interspersed between the irrigated circles, referred to as the non-productive agricultural areas or "triangles." These areas range in size from less than an acre to several hundred acres and average approximately seven acres. Most of the non-productive agricultural areas are characterized by non-native vegetation that provides little value to native wildlife; however, the Farm has replanted approximately 1,000 acres with native grasses as a weed-control method. In the future, the Farm may choose to develop and/or irrigate these areas, which will rotate with agricultural crops and be managed for native vegetation and habitat purposes on a voluntary basis (**Figure 2**).

Permittees: Those parties that have committed, as Signatories of this document, to implement the Conservation Commitment provisions provided by this Multi-Species Candidate Conservation Agreement. The Permittees (including their employees, agents, representatives, consultants, contractors, sub-contractors, and other parties over whom the Permittees have authority and/or control, such as subtenants within the Covered Area operating under subleases amended to include terms and conservation commitments of the MSCCAA) shall thus be provided with an enhancement of survival permit under the provisions of the Endangered Species Act, to take individuals or habitat of the Covered Species over the lifetime of this Agreement and remain in compliance with the Endangered Species Act should any of the Covered Species become listed under the Endangered Species Act in the future.

PGE Conservation Area: Approximately 880 acres of the PGE Boardman Plant property has been dedicated to conservation. This area is contiguous with the South Farm Conservation Area.

Signatories: Those parties that sign this Multi-Species Candidate Conservation Agreement and commit to cooperatively and constructively implement the Agreement for the benefit of the native plant and wildlife species.

Suitable habitat: As provided in section 5.1.3 of this Agreement, suitable habitats are those areas capable of supporting any one of the Covered Species based on various habitat types and characteristics. Suitable habitats within the Covered Area for each Covered Species are more fully described in section 5.2 of this Agreement and illustrated in **Figures 4-7**. Suitable habitat for the Washington ground squirrel can occur beyond the Warden and Sagehill soil types illustrated in **Figure 4**. Sizes and locations of suitable habitats within the Covered Area may change as vegetation conditions change.

Take: The Endangered Species Act defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect or attempt to engage in any such conduct." (16 USC 1532[19]) **Harm** is further defined to include "significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering." (50 CFR 17.3) **Harass** is defined as "actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering." (50 CFR 17.3)

Undeveloped Portions of the Farm: There are approximately 26,000 acres within the Farm property that are not currently irrigated. These undeveloped areas are located primarily within Threemile Canyon, Sixmile Canyon, Willow Creek Canyon, and along Interstate 84.

ACRONYMS

BBIRD	Breeding Bird Research and Monitoring Database
BBS	Breeding Bird Survey
CCAA	Candidate Conservation Agreements with Assurances
DEA	David Evans and Associates, Inc.
EFSC	Energy Facility Siting Council
ESA	Endangered Species Act
MOU	Memorandum of Understanding
MSCCAA	Multi-Species Candidate Conservation Agreement with Assurances
ODFW	Oregon Department of Fish and Wildlife
OOE	Oregon Office of Energy
PGE	Portland General Electric
SOS	Scheduled Observation Surveys
TNC	The Nature Conservancy
USFWS	U.S. Fish and Wildlife Service

1 INTRODUCTION

This Multi-Species Candidate Conservation Agreement with Assurances (MSCCAA or Agreement) has been prepared through a collaborative effort among Threemile Canyon Farms (the Farm), The Nature Conservancy (TNC), Portland General Electric (PGE), the U.S. Fish and Wildlife Service (USFWS), and the Oregon Department of Fish and Wildlife (ODFW) (collectively, the Signatories). The named Permittees on the accompanying section 10(a) permits from USFWS are the Farm, TNC, PGE and ODFW.

This MSCCAA provides conservation measures for the Washington ground squirrel (*Spermophilus washingtoni*), currently having candidate species status under the Federal Endangered Species Act (ESA) and listed as an endangered species under the State of Oregon ESA. This MSCCAA also provides conservation measures for the ferruginous hawk (*Buteo regalis*), loggerhead shrike (*Lanius ludovicianus gambeli*), and sage sparrow (*Amphispiza belli*), which may be federally or state listed in the future. These four species are referred to as the Covered Species within this document. Pursuant to the MSCCAA, supporting framework, and its early implementation, the Permittees will be or are:

- Dedicating a combined total of approximately 23,480 acres to Conservation Areas. TNC, or a comparable third-party conservation organization will manage the 22,600 acres of Conservation Areas, dedicated by the Farm and protected under a conservation easement, with the intent of maintaining and improving the imperiled native shrub-steppe and grassland habitats for the Covered Species and other associated wildlife. The PGE Conservation Area would also be protected from development and managed by PGE for conservation purposes for the life of the MSCCAA.
- Providing a 250-foot buffer around the entire Farm Conservation Areas to further restrict land use activities that otherwise could affect the outer edges of these areas.
- Providing funds for the preservation, management, and improvement of the Conservation Areas, including intensive noxious weed control.
- Providing funds for conducting extensive monitoring, surveying, notification, and reporting.
- Adding restrictions on grazing, ground-disturbing activities, hunting and shooting to avoid or minimize harmful impacts to the Covered Species.
- Developing and implementing coordinated fire response plans and detailed conservation management plans for the Conservation Areas.
- Providing for adaptive management within the Conservation Areas to address changing habitat conditions.

Except as provided in the final policy regarding Candidate Conservation Agreements with Assurances (USFWS 1999, 64 FR 32706-32716 and 64 FR 32726-32736) and USFWS regulations (currently codified at 50 CFR § 17.22(d)(5) and § 17.32(d)(5), the

USFWS will not require additional conservation or mitigation measures, or the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources, beyond the level otherwise agreed upon for the Covered Species herein without the consent of the Permittees, should any of those species be listed as threatened or endangered under the Federal ESA. Should any of the Covered Species become listed, this Agreement allows the Permittees, through an accompanying enhancement of survival permit (see definition in the Glossary of Terms), to take individuals of the Covered Species (see definition of "take" in the Glossary of Terms). The extent of this authorized incidental take will be consistent with the level identified and agreed upon in this Agreement and will be the result of the types of activities outlined within this Agreement. This MSCCAA will cover property that is owned by Threemile Canyon Farms, property currently managed by TNC (leased from the Farm), and property owned and managed by PGE. This Agreement will be effective for 25 years from the date of the last signature and issuance of the section 10(a) permits. The permits, however, will become valid for any Covered Species upon the date of any emergency or final rule that lists that species as threatened or endangered under the Federal ESA.

2 LEGAL AUTHORITY

Sections 2, 7, and 10 of the Endangered Species Act of 1973, as amended, and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq*.), allow USFWS to enter into an MSCCAA. Section 2 of the ESA states that, through Federal financial assistance and a system of incentives, the encouragement of parties to develop and maintain conservation programs is a key to safeguarding the nation's heritage of fish, wildlife, and plants. Section 7 of the ESA requires USFWS to review programs it administers and to utilize such programs in furtherance of the purposes of the ESA. By entering into an MSCCAA, USFWS utilizes its Candidate Conservation Programs to further the conservation of the nation's fish, wildlife, and plants. Section 10(a) of the ESA authorizes the USFWS to issue permits to "enhance the survival" of a listed species.

In 1999, USFWS issued its final policy for Candidate Conservation Agreements with Assurances (CCAA) (USFWS 1999, 64 FR 32706-32716 and 64 FR 32726-32736). Under the policy, non-Federal property owners who commit in a CCAA to implement mutually-agreed-upon conservation measures for proposed or candidate species, or species likely to become proposed or candidate species in the future, will receive assurances from USFWS that additional conservation or mitigation measures above and beyond those contained in the CCAA will not be required. Furthermore, the USFWS will not require the participating landowner to commit additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon for the Covered Species should a species covered by the CCAA become listed in the future.

USFWS will enter into a CCAA and issue the accompanying section 10(a) permits when it determines that the benefits of the conservation measures implemented by a property owner under a CCAA, when combined with those assumed benefits that would be achieved if such conservation measures were also implemented on other similarly situated properties, would preclude or remove any need to list the Covered Species. Qualified participants in a CCAA will receive the enhancement of survival permits under section 10(a)(1)(A) of the ESA, which authorizes the Permittee to incidentally take species covered in a CCAA upon the listing of that species. The enhancement of survival permits for the participants in this MSCCAA are included in **Appendix B**.

In compliance with the National Environmental Policy Act (NEPA) USFWS has prepared an Environmental Assessment (EA) for this MSCCAA. The EA is provided in **Appendix C**.

3 PURPOSE

The purpose of this MSCCAA is to implement a variety of conservation measures within the Covered Area (see Section 7) for the Washington ground squirrel, the ferruginous hawk, the loggerhead shrike, and the sage sparrow (Covered Species). The MSCCAA and associated permits also are meant to provide regulatory certainty to the Permittees should any of the Covered Species subsequently be listed under the ESA, thus allowing the Permittees to plan and implement long-term land uses and management practices. The MSCCAA is also the result of an underlying, supporting framework for developing and implementing a conservation plan, as fully discussed in Section 1.1 and 1.2.1 of the Environmental Assessment for this proposed action (**Appendix C**).

Under this MSCCAA, the Signatories will implement habitat management and conservation measures for the Covered Species within the Covered Area. All conservation strategies outlined in this MSCCAA attempt to meet the long-term conservation needs of the Covered Species. Additional wildlife species of ecoregional importance that utilize the habitats of the Covered Species will also benefit from implementation of this MSCCAA, as will a suite of native plant communities.

Consistent with the USFWS Final Policy on Candidate Conservation Agreements (USFWS and NMFS 1999) and its implementing regulations, the conservation goals of this MSCCAA are to encourage maintenance and restoration of suitable habitat for the Covered Species and to support the recovery of the Covered Species. The conservation goals will be met by giving the Permittees incentives to implement conservation measures (see Section 7). Without the incentives and regulatory assurances provided by this Agreement and associated section 10(a)(1)(A) permits, landowners may be unwilling to protect sensitive species or improve their native habitats, due to the potential for future land use restrictions should the species be listed under the Federal ESA.

4 COVERED AREA

The area covered by this MSCCAA and associated permits (Covered Area) (**Figure 1** and **Figure 2**) is within the Columbia Basin ecoregion, which in the state of Oregon extends east from the eastern slopes of the Cascade Mountains and south from the Columbia River to the Blue Mountains (Defenders of Wildlife 1998). This ecoregion is second only to the Willamette Valley in the percentage of landscape converted to non-native habitats and human uses (Defenders of Wildlife 1998). Grasslands in the Columbia River Basin have declined by more than half from historic levels, and plant and animal species associated with these habitats have declined as much as, or more than, any other group of species in the region (Quigley and Arbelbide 1997).

The Covered Area is located along the south bank of the Columbia River, adjacent to the John Day Reservoir (Lake Umatilla), approximately half-way between the McNary Lock and Dam to the east and the John Day Lock and Dam to the west. The Covered Area is mostly in Morrow County, with western portions of the site in east Gilliam County. The town of Boardman is approximately six miles to the northeast and the city of Heppner is approximately 25 miles to the south. Interstate 84 runs through the north portion of the Covered Area.

The Covered Area includes the property owned by Threemile Canyon Farms, by and through its wholly-owned subsidiary BAIC, Inc., as well as property owned by PGE that is contained within the Farm property boundary. The legal descriptions of the properties within the Covered Area are included in **Appendix A**.

The Farm is owned by R.D. Offutt Company-Northwest and Bos Family Oregon Farms and includes several subtenants, including The Boeing Company (Boeing) holds the lease to a 2,700-acre area within the Farm described as the "radar range," which is also included within the Covered Area (**Figure 2**). The Boeing lease is set to expire in 2040. The Farm has developed 38,440 acres of the property and is planning to develop all undeveloped portions (Future Agricultural Areas, Radar Range and Undeveloped Portions) of the Farm Development Area (**Figure 2**). In addition to the known 2,560 acres that will be developed for agricultural commodities, the Farm may develop other areas through general development or agricultural activities.

ODFW holds a permanent Conservation Easement (**Appendix D**) on over 22,600 acres within the lands owned by Threemile Canyon Farms referred to as the "Farm Conservation Areas" (**Figure 2**). The Farm Conservation Areas are currently managed by TNC under a 40-year lease from Threemile Canyon Farms in accordance with the terms of the ODFW Conservation Easement. The goal of the management of these Conservation Areas is to maintain, and improve where feasible, the imperiled native shrub-steppe habitats and their associated wildlife and eventually achieve long-term conservation of the area's biological diversity. Without the conservation easement and the subsequent management, these areas would continue to degrade under the pressures

of grazing, uncontrolled wildfires, and the spread of invasive species. The Farm has also designated a 250-foot buffer zone to separate the farming activities from the Conservation Areas (**Figure 2**). The Farm intends to sell the Conservation Areas for fair market value, through fee title or conservation easement, to The Nature Conservancy or another qualified entity.

Portland General Electric owns and controls 3,520 acres within the boundaries of the Farm's property as described in **Appendix A** of this Agreement. This area is referred to as the Portland General Electric-Boardman Plant (**Figure 2**). PGE leases another 200 acres from the Farm, also described in **Appendix A** of this Agreement, for plant-related equipment and operation. In addition, PGE has existing easements from Threemile Canyon Farms and additional transmission lines on lands under control of the Farm. PGE leases 580 acres of the Plant property to the Farm for agricultural production, as described in **Appendix A** (as illustrated in **Figure 2**). For the purposes of this agreement and as used herein, the expression "PGE Boardman Plant property," or simply "Boardman Plant property," is meant to include all lands and easements owned and/or controlled by PGE as described above and in **Appendix A** (4,300 acres total). On its Boardman Plant property, PGE operates the Boardman Coal Plant, which is the largest power plant owned and operated by PGE and is the only coal-fired power plant in Oregon. The Boardman Coal Plant has been producing electricity commercially since 1980. Adjacent to the power plant is the 1,400-acre Carty Reservoir, which provides water critical for power plant condenser cooling as well as storage for agricultural irrigation. PGE is responsible for Carty Reservoir operations. PGE has designated 880 acres of its Boardman Plant property as the PGE Conservation Area that is contiguous with the South Farm Conservation Area (**Figure 2**).

4.1 REGIONAL OPPORTUNITIES

The opportunity for regional and collaborative stewardship is integral to the implementation of the Candidate Conservation Program because broader scale involvement will further preclude the need to list the Covered Species.

While nothing prohibits Federal agencies from voluntarily entering into an MSCCAA, such entities are bound by sections 7(a)(1) and (a)(2) of the ESA to affirmatively conserve listed species, an obligation not imposed upon non-Federal property owners. Thus, USFWS cannot provide Federal agencies long-term regulatory assurances through entering into a CCAA. However, it is the intent of this MSCCAA to provide a model for Federal entities (e.g., the U.S. Navy and the Bureau of Land Management [BLM, Horn Butte] who own property adjacent to the Covered Area) to consider in their conservation planning efforts. In addition, this MSCCAA may be used as a model for private landowners in the area to develop Candidate Conservation Agreements on their own property to provide further protection for the Covered Species.

Figure 1 *Vicinity*

Figure 2 *Covered Area*

5 BASELINE CONDITIONS AND COVERED SPECIES

To establish baseline existing vegetation conditions and to facilitate population estimates of the Covered Species in the Covered Area, the plant communities have been mapped over all undeveloped portions of the Covered Area. These community types are illustrated in **Figure 3**. The objectives, methods and results of this survey are summarized in a brief report included in **Appendix E**.

5.1 SURVEY METHODS

The methods used to map suitable habitat and estimate populations are based on site specific surveys for the Covered Species, vegetation mapping, and the knowledge of biologists and ecologists at USFWS, ODFW, TNC, PGE and David Evans and Associates, Inc. (DEA). Existing information was used to the greatest extent possible, supplemented by original research where needed. Experts at USFWS, ODFW, TNC, and PGE were consulted to fill data gaps.

5.1.1 Vegetation Mapping

Plant community mapping for the South Farm Conservation Area was completed by TNC in spring/summer 2001. Mapping for all areas within the Covered Area (excluding the developed portions of the Farm and PGE Boardman Plant property) that were not previously mapped by TNC was completed in late summer/early winter 2001. Mapping and plant community nomenclature used by TNC was duplicated for the additional vegetation mapping in order to provide consistency across the Covered Area. Specific methods used are described in **Appendix E**. Currently-developed Farm property was not surveyed as little native vegetation remains; therefore, there is no anticipated suitable habitat for Covered Species in these areas.

5.1.2 Wildlife Surveys

Washington ground squirrel surveys have been conducted by ODFW, TNC, PGE and the Farm and its subtenants; all followed ODFW protocol (Morgan and Nugent 1999). ODFW biologists conducted surveys on the South Farm Conservation Area in 1999. Surveys were conducted by TNC on the South Farm Conservation Area north of Carty Reservoir in 2001. PGE biologists conducted surveys on the Boardman Plant property in 1999 and 2001. The Farm and its subtenants hired CH2M Hill biologists to conduct surveys in 2000 throughout the North Conservation Area, lands west and south of the North Conservation Area, and other isolated locations (CH2M Hill 2000). A map showing the survey areas for Washington ground squirrels in the Covered Area is located in **Appendix F**.

Bird surveys have been conducted within portions of the Covered Area and in adjacent areas, using a variety of valid biological sampling techniques. While different sampling

techniques were utilized, the baseline population estimates for each species represents the best available information.

Ferruginous hawk surveys in the South Farm Conservation Area were conducted by ODFW in 1991, 1992, and 1993. These surveys focused on sandy-sagebrush habitat type with a juniper habitat. All nests identified by ODFW were in western juniper. In 2001, TNC resurveyed seven ODFW nest sites. Additional surveys to identify nest trees were undertaken by ODFW in 2002 throughout the southwest portion of the Farm. Once per month, PGE conducts Scheduled Observation Surveys (SOS) along designated road transects using the strip count method for ferruginous hawk and other raptors. PGE has been conducting these surveys each year since 1996 (PGE 1996, PGE 1997, PGE 1999, PGE 2000, PGE 2001, PGE 2002a).

Point count surveys for loggerhead shrike on the Covered Area have been conducted only on the PGE Boardman Plant property (PGE 1996, PGE 1997, PGE 1999, PGE 2000, PGE 2001, PGE 2002a). Surveys have also been conducted on the adjacent Naval Weapons Systems Training Facility (Naval Facility) (Holmes and Geupel 1998). Here, point count surveys were completed following the modified Breeding Research and Monitoring Database (BBIRD) guidelines (Martin and Conway 1995).

Sage sparrow surveys on the Covered Area have been conducted only on PGE Boardman Plant property (PGE 1996, PGE 1997, PGE 1999, PGE 2000, PGE 2001, PGE 2002a). PGE employs a point count method and surveys are conducted once per month in April, May, and June. All surveys commence at sunrise and end no later than three hours past sunrise (PGE 2000). Surveys have also been conducted on the adjacent Naval Facility (Holmes and Geupel 1998). Point count surveys were completed for the Naval Facility following the modified BBIRD guidelines (Martin and Conway 1995).

5.1.3 Suitable Habitat

Suitable habitat for the Covered Species within the Covered Area was identified based on the results of wildlife surveys conducted to date and the correlation of species presence to specific environmental or vegetative characteristics reported in the literature. For each species, a preliminary habitat map was prepared identifying habitat based on mapped soil type or plant communities. For the loggerhead shrike and sage sparrow, the habitat map included habitat quality based on plant communities.

These maps were presented to biologists at ODFW and PGE for review and comment. Maps were then refined based on biologists' knowledge of site-specific habitats and Covered Species distributions. Maps presented in this Agreement have been reviewed and approved by ODFW and PGE.

Figure 3 Vegetation Community Types

5.1.4 Population Estimates

Within the Covered Area, population estimates of the Covered Species were developed in two ways. Survey data was used for the Washington ground squirrel and ferruginous hawk. For the loggerhead shrike and sage sparrow populations, data was extrapolated by comparing known population densities within a specific vegetation community to all similar communities within the Covered Area. Specific details are provided in the discussion of Population Estimate for each Covered Species. These methods and results were presented to biologists at ODFW and PGE for their review and comment. Population estimates presented in this Agreement have been reviewed and approved by ODFW.

5.2 COVERED SPECIES

This section provides information on the status, range, natural history, and populations within the Covered Area for the Covered Species. The management considerations discussed in this section are intended to illustrate the type of management measures and conservation efforts that may benefit each species. The specific Conservation Commitments that will be undertaken as part of this Agreement are discussed in Section 7 and are based upon these management considerations. USFWS and DEA have prepared a separate document that provides information on the baseline populations, threats, and how the Conservation Commitments address the threats for each of the Covered Species. This document is included as **Appendix G**.

5.2.1 Washington Ground Squirrel

5.2.1.1 Status

The Washington ground squirrel is listed as endangered under the Oregon ESA and is a candidate for Federal listing (Priority 2, i.e., species with high magnitude, imminent threats, as described in 66 FR 1295, January 8, 2001). This species has suffered dramatic population decreases across its entire range. Providing Conservation Commitments for this species and securing long-term regulatory assurances is a primary motivation behind this Agreement.

5.2.1.2 Range

The Washington ground squirrel is endemic to the Deschutes-Columbia Plateau Province south of the Columbia River and east of the John Day River. Its range was probably contiguous when the region was first settled, but now consists of three distinct sub-populations, two in Washington and one in Oregon (NEDC et al. 2000). This MSCCAA addresses only the Oregon population of the squirrel, which has been petitioned as a discrete population for Federal ESA listing. In Oregon, the squirrel occurs in lower elevation (generally up to 800 feet) native grasslands and shrub-steppe, south of the Columbia River, east of the John Day River, and west of Pendleton, with the majority of

the known population occurring within the South Farm Conservation Area and the adjacent Naval Facility.

5.2.1.3 Natural History

The Washington ground squirrel is associated with shrub-steppe and grassland habitats. Greene (1999) found the highest densities of the species in sagebrush (*Artemisia tridentata* sp.) and lower densities in bunchgrass habitats. The squirrel is more abundant in areas with high vegetation cover on deep, weaker soils with less clay and high silt (Betts 1990, Greene 1999). The squirrel is found primarily in areas where the soils are undisturbed. Greene (1999) found that Washington ground squirrels were located more often in sites underlain with the Warden soil type, a soil with a high silt content and characterized as being very deep. While the ground squirrel appears to prefer the Warden soil type, they can also be found in the Sagehill and other soil types found within the Covered Area (**Figure 4**). It is generally thought that squirrels prefer Warden soils because of the relative ease of digging and maintaining burrow systems rather than in other loam soils with high clay content or high sand content (Greene 1999). The Warden soil type is mainly located in the south portion of the Covered Area, although it may be present in scattered areas throughout the Covered Area.

Table 1 *Warden and Sagehill Soil Types in the Covered Area*

Covered Area	*Warden Soils*	*Sagehill Soils*
Farm	**110 acres**	**9,313 acres**
Farm Conservation Area	10,447 acres	6,595 acres
PGE Boardman Plant Property[1]	0	928 acres
PGE Conservation Area	0	335 acres

[1] *Excludes acreage within PGE Conservation Area*

The Washington ground squirrel is a colonial species that is active for only four to five months of the year. It emerges from dormancy in January to early March. Immergence, i.e., the beginning of dormancy, occurs in late May or early June for adults, while juveniles remain above ground for another month. Due to the short interval this species is active above ground, only one litter is produced annually. The reproductive season is from February to April, and the litter size ranges from five to eleven, with an average of eight young.

5.2.1.4 Population Within the Covered Area

Over time, most of the native vegetation on the active Farm has been converted to agriculture and no longer provides suitable habitat for the Washington ground squirrel The South Farm Conservation Area provides a large undeveloped area of suitable ground squirrel habitat that may serve as source populations and provide important connectivity

Figure 4 *Washington Ground Squirrel Sites*

between unoccupied habitat within Farm Conservation Areas, the Naval Facility, Horn Butte and other areas of suitable habitat. Ground squirrels have been found in the northern section of the Naval Facility, indicating that suitable soil conditions may occur in small patches (Quade 1994, Morgan 2001). Though ground squirrels may occur in the North Farm Conservation Area, numbers are expected to be low due to a limited amount of the preferred soil types. On the radar range, there has been no opportunity to conduct ground squirrel surveys but active ground squirrel sites have been located adjacent to this area. Portions of the radar range were scraped of vegetation several decades ago and it is not known whether there has been additional ground disturbance. It is unknown, due to the previous ground disturbance, how much of the radar range still provides suitable habitat for the ground squirrel. In the undisturbed portions of the radar range, the number of ground squirrel colonies may be similar to the number of colonies found on the northern portion of the South Farm Conservation Area and Naval Facility where soil conditions are similar.

In general the soil conditions in the northern portion of the Farm along Interstate-84 do not provide suitable habitat for ground squirrels. In this area, soil depths are shallower with more underlying basalt and rock outcrops than preferred soil conditions. However, complete surveys have not occurred in this area and small pockets of suitable soil conditions may occur. It is unknown if ground squirrels would utilize these small isolated patches.

Figure 4 shows the known locations of the Washington ground squirrel on the Covered Area. A map showing the survey areas for Washington ground squirrels in the Covered Area is located in **Appendix F**. The number of ground squirrels in the Covered Area is based on active sites located during surveys conducted by ODFW, TNC, and PGE on the southern portion of the Covered Area where the majority of this species' habitat occurs. All Washington ground squirrel surveys followed the protocol developed by ODFW in 1999. The 1999 ODFW survey identified 104 active sites (either colonies or individuals) on the South Farm Conservation Area (Morgan and Nugent 1999). The 2001 TNC survey on the South Conservation Area north of Carty Reservoir confirmed 17 active sites. Six unconfirmed sites were located but not included in the survey results.

PGE conducted surveys on its Boardman Plant property in 1999 and 2001. Only one colony was located during the 2001 survey and it may be part of an adjacent colony located on the South Farm Conservation Area. Therefore, it was not counted as a separate site. An individual Washington ground squirrel was observed on the PGE Boardman Plant property in 2001 but not during the survey period (Nelson 2001). This sighting is included in the total number of active sites in the Covered Area. As of 2001, there are 122 known Washington ground squirrel locations (either colonies or individuals) on the Covered Area. All are in the designated Conservation Areas, with 121 on the South Farm Conservation Area and one on the PGE Conservation Area.

There were no observations of Washington ground squirrels within the north Future Agricultural Area, North Conservation Area and other isolated areas surveyed on the Farm in 2000 (CH2M HILL 2000). The south Future Agricultural Area was surveyed in 1999 by ODFW and no active sites were located (Morgan and Nugent 1999).

The majority of the undeveloped portions of the Farm contain relatively small amounts of potential suitable habitat and have not been surveyed for Washington ground squirrels (see **Appendix F**). The radar range may contain suitable habitat and will be surveyed for Washington ground squirrels by qualified biologists prior to any ground disturbance (refer to 7.1.1 for the Farm's Conservation Commitments related to the Washington ground squirrel).

5.2.2 Ferruginous Hawk

5.2.2.1 Status

The ferruginous hawk is a species of concern and is identified by the State of Oregon as a sensitive species (ONHP 2001). Data from the Breeding Bird Survey (BBS) show no population trend for this hawk species in the Columbia River Basin (Saab and Rich 1997). This species is included within this MSCCAA due to its status within the region, its strong association with the native grassland and steppe habitats in the Covered Area, and the fact that the South Farm Conservation Area contains the largest remaining piece of habitat in the Columbia Basin (Morgan 1997).

5.2.2.2 Range

This hawk ranges over most of eastern Oregon's grasslands. It was once fairly common in Oregon, but has declined with the conversion of grasslands to agriculture over much of its range. It breeds from southern Canada to northern California, and south and east to west Texas and the Dakotas (Csuti et al. 1997).

5.2.2.3 Natural History

The ferruginous hawk is found in open grassland, desert-steppe, and juniper (*Juniperus* sp.) woodlands (Csuti et al. 1997). In the Covered Area, it is associated primarily with the sandy-sage-juniper vegetation found in the southwest portion of the Farm, southern portion of the PGE Boardman Plant property and South Farm Conservation Area. There are approximately 2,685 acres of this habitat type on the South Conservation Area, 280 acres on the Farm's south Future Agricultural Area, 80 acres on the PGE Conservation Area, and 178 acres on other PGE developed lands. The South Farm Conservation Area contains the single largest remaining piece of sandy-sagebrush-steppe-juniper habitat in the Columbia Basin (Morgan 1997) (**Figure 5**). Ferruginous hawks are also found nesting in scattered juniper located primarily in draws.

Figure 5 *Known Ferruginous Hawk Nests*

Ferruginous hawks are migratory and return to the Covered Area in early March with peak fall out-migration in September (Gilligan et al. 1994). The primary breeding season for the ferruginous hawk is from March 1 to July 31. Ferruginous hawk nesting information collected by ODFW in 1991 and 1992 in the South Farm Conservation Area indicates that eggs were laid in early April and young fledged in late June (ODFW 1993).

Territory and nest site re-occupancy is common. A single pair may use one of several nests within a territory in alternate years. Selection of a nest site depends upon available substrates and surrounding land use. Ferruginous hawks nest in trees or on the ground (Dechant et al. 1999). In the Covered Area, nests are located generally in western juniper trees with large support branches. The nest trees may be isolated or on the edge of dense areas of juniper. Ferruginous hawks that nest in trees seem to be less sensitive to surrounding land use than those that nest on the ground, but they still avoid areas of intensive agriculture or high human disturbance (Dechant et al. 1999). No nests have been located on the ground in the Covered Area.

The ferruginous hawk is very sensitive to human disturbance during the nesting season and has been observed to abandon nesting attempts, eggs or chicks following prolonged disturbance. If abandonment occurs, re-nesting within the same year is rare (Dechant et al. 1999). The hawk is unlikely to nest on developed portions of the Farm, since nests are not typically located adjacent to areas with human activities. Sensitivity to disturbance may be heightened in years of low prey abundance. Density and productivity are closely associated with cycles of prey abundance. Clutch size, fledgling rate, and/or breeding density tend to vary with prey availability, especially jackrabbit or ground squirrel (Dechant et al. 1999).

The ferruginous hawk generally forages in open habitats with short vegetation where prey is abundant (Tesky 1994). It preys primarily on jackrabbits, ground squirrels, pocket gophers, and kangaroo rats (Csuti et al. 1997). It often stalks its prey or waits at a burrow, a habit which is only expedient in open country with sparse and short vegetation. Based on this foraging method, the hawk tends to avoid areas where grasses are replaced by dense and tall crops (Schmutz 1987). The ferruginous hawk may use the undeveloped portions of the Farm as foraging habitat. When prey densities are low in big sagebrush-grassland habitats, agricultural fields can also serve as important foraging areas. In Washington, ferruginous hawks forage extensively in alfalfa and irrigated potato fields during the breeding season, presumably because of high prey densities in these areas. In Oregon, ferruginous hawks prefer native grassland and shrubland habitats to cropland. This species also prefers areas with no perches (Dechant et al. 1999). Specific information on roosting habitat was not available for this species.

5.2.2.4 Population Within the Covered Area

The population estimate of the ferruginous hawk in the Covered Area is based on the number of known active nests and estimated nest territory sizes. The active nests were

found during surveys that were conducted by TNC in 2001 and by PGE since 1995 over portions of the Covered Area (Nelson 2001, PGE 1996, PGE 1997, PGE 1999, PGE 2000, PGE 2001, PGE 2002a). These surveys determined a total of five known active nest sites in the Covered Area. Four of the active nests were located on the South Farm Conservation Area, and one active nest was located on the Farm in the south Future Agricultural Area (Nelson 2001). There are no documented nests located on the PGE Boardman Plant property, but one to two pairs have been observed foraging in the area. Studies have found eight to ten territories per 24,710 acres if local conditions are favorable (Dechant et al. 1999). Studies on the adjacent Naval Facility discovered an average of 1.6 miles between ferruginous hawk nests (Holmes and Geupel 1998).

Since the ferruginous hawk will use several nest trees within a single territory, potential nest trees were identified. The number of nest trees is based on three years of general ferruginous hawk nest surveys conducted by ODFW from 1991 to 1993, a verification of known nest locations on the Conservation Area by TNC in 2001, and a survey of the southwestern corner of the Farm by ODFW in 2002 (ODFW 1993, Nelson 2001, Morgan 2002, respectively). These surveys identified six nest trees on the Farm, four of which are located in the south Future Agricultural Area. In addition, 16 nest trees were found on the South Farm Conservation Area. To be considered a nest tree, the site had to have an actual nest in place or evidence of a previous nest. Only five of the known nest trees contained active ferruginous hawk nests.

Based on ODFW surveys from 1991 to 1993, seven ferruginous hawk nests occurred in the Covered Area (Morgan 1997), but surveys conducted by TNC in 2001 found two of these nest sites were occupied by Swainson's hawks (*Buteo swainsoni*) (Nelson 2001). Swainson's hawks forage primarily in grassland and sage-steppe habitats but are more likely than ferruginous hawks to forage in agricultural fields. With development of the Farm, nest trees located along the edge of the South Farm Conservation Area may provide more suitable habitat for Swainson's hawks than ferruginous hawks due to the increase in human disturbance.

A thorough survey of the entire Covered Area was not conducted for potential ferruginous hawk nests. Locations of potential ferruginous hawk nest trees on the Covered Area are illustrated in **Figure 5**. As of 2001, there are estimated to be five pairs nesting on the Covered Area, based on incidental surveys of the originally surveyed nest sites in the South Farm Conservation Area by TNC and the annual PGE surveys.

5.2.3 Loggerhead Shrike

5.2.3.1 Status

The loggerhead shrike is an Oregon state-sensitive species (vulnerable) in the Columbia Basin and has no current Federal listing status (ONHP 2001). The BBS documented an annual decline of 2.7 percent between 1968 and 1994. The shrike has been included on

the Audubon Society's Blue List of declining species every year since 1972 (Holmes and Geupel 1998). The population decline has been attributed to many factors, including pesticides, loss of nesting habitat, high winter mortality, and intensive farming practices. The low reproductive success and high fledgling mortality observed on the Naval Facility may also be contributing to this species' region-wide population decline (Holmes and Geupel 1998).

This species is included in this MSCCAA because the population appears to be declining across its range (thereby increasing its likelihood of becoming proposed for Federal listing) and because of the recent documentation of poor nesting success and high fledgling mortality on the adjacent Naval Facility (Holmes and Geupel 1998).

5.2.3.2 Range

Loggerhead shrikes breed in central Canada and from eastern Washington and Oregon east to New York and south throughout the United States to southern Mexico (Csuti et al. 1997). Despite its wide distribution, the loggerhead shrike is one of the few North American passerines (i.e., perching birds) whose populations have declined continent-wide in recent decades (Yosef 1996).

5.2.3.3 Natural History

Loggerhead shrikes may occur in almost any fairly open vegetation type where there are occasional tall shrubs, trees or structures for perching and nesting. This includes sagebrush, bitterbrush *(Purshia tridentata)*, juniper woodlands and other desert communities (Csuti et al. 1997). In surveys conducted on the Naval Facility, the loggerhead shrike was found primarily in sagebrush and juniper habitats (Holmes and Geupel 1998) and may be found in similar habitat within the Covered Area. No nests were located in bitterbrush habitat on the Naval Facility (Holmes and Geupel 1998). **Figure 6** illustrates probable loggerhead shrike habitats within the Covered Area. These habitat types are located primarily in the southern portion of the undeveloped portions of the Farm, southern portion of PGE's property, and in the South Farm Conservation Area.

This species is highly territorial; pairs defend breeding territories within which all nesting activities take place including foraging, mating, and raising young (Yosef 1996). The shrike returns in March and departs by late September, with a few staying into November (Gilligan et al. 1994). Nesting begins in late March and may continue into August. On the Naval Facility, the preferred nesting habitat for the loggerhead shrike is big sagebrush with over 90 percent of the nests found in sagebrush (Holmes and Geupel 1998). Nests have also been documented in juniper trees on the Naval Facility (Morgan 2002). Loggerhead shrikes also use juniper for perching and foraging habitat. In other parts of Oregon, juniper is used extensively by this species for nesting habitat. In sagebrush habitat with a juniper component, there would be a higher number of structures that could

provide nesting habitat as well as provide higher perching habitat for this sit-and-wait predator (Morgan 2002).

The loggerhead shrike has the same foraging strategy and diet as small raptors. It generally feeds more on invertebrates in the spring and summer and more on warm-blooded prey, including small birds and mammals, in the winter (Csuti et al. 1997). It hunts from perches and impales its prey on sharp objects such as thorns and barbed-wire fences or wedges prey in narrow V-shaped forks of branches. Foraging habitat is characterized by well-spaced shrubs and low trees, usually interspersed with short grasses, forbs, and bare ground. The shrike favors fence lines and utility lines and poles for perching, so it is frequently found along roadways (Yosef 1996).

Information on roosting habitat for the loggerhead shrike is limited. The literature indicates that roost sites need to have some support above ground level, within a screen of overhanging limbs. The loggerhead shrike tends to settle in to roost almost one hour after sundown and leaves about 40 minutes before sunrise (Yosef 1996).

5.2.3.4 Population within the Covered Area

On the Covered Area, point count surveys have been conducted for the loggerhead shrike only on the PGE Boardman Plant property (PGE 1996, PGE 1997, PGE 1999, PGE 2000, PGE 2001, PGE 2002a) Surveys have also been conducted on the adjacent Naval Facility. Breeding habitat information from these studies was used to determine suitable habitat and territory size within the Covered Area. The population estimate for the loggerhead shrike is based on suitable habitat identified from vegetation data and on-the-ground knowledge of the habitat quality by ODFW and PGE biologists (**Figure 6**). The vegetation information was provided by TNC for the Farm Conservation Areas and by DEA for the PGE Boardman Plant property and the undeveloped portions of the Farm.

Through initial discussions with USFWS and others, it was agreed to rank the quality of suitable habitat into three categories (high, medium, and low). Territory densities would then be assigned to three categories based on available literature and survey information and site-specific knowledge of ODFW and PGE biologists.

Figure 6 *Loggerhead Shrike Habitat*

The vegetation conditions used to determine potential habitat for this species included sagebrush cover, total ground cover, and bare ground (Holmes and Geupel 1998, Altman and Holmes 2000). Using the vegetation community type map (**Figure 3**) as the basis for identifying suitable habitat, ODFW and PGE biologists categorized the quality of habitat based on their knowledge of on-site habitat conditions and vegetation data.

After the initial mapping exercise, it was determined that the vegetative characteristics of the habitats labeled low and medium in the Covered Area were so similar as to not have any biological significance and could not be used to differentiate territory densities (Morgan 2002). Differences in extent and structure of big sagebrush were the distinguishing factors in determining quality of habitat and populations of loggerhead shrikes. The presence or absence of western juniper plays a role in supporting populations of loggerhead shrikes by providing additional nesting habitat and perching/foraging habitat. Due to its use of juniper, loggerhead shrikes are thought to have a higher density in habitat with a juniper component (Morgan 2002). On the South Farm Conservation Area, the primary difference between low and medium quality habitats is patch size and structure of big sagebrush (Morgan 2002). Due to the level of sampling, information on patch size and structure of big sagebrush combined with the presence of juniper was not included in the vegetative data collected. Therefore, on-site knowledge of sagebrush characteristics was used by ODFW and PGE biologists to re-categorize habitat quality. Habitat areas with a dense juniper component were identified and mapped by DEA biologists from aerial photographs (**Figure 3**). It was also agreed that, due to the intensity of the fire in 2000 near Willow Creek and the loss of sagebrush habitat, this area would be identified as having the lowest quality habitat in terms of its ability to support loggerhead shrikes (Morgan 2002). This area is also identified on **Figure 6**. ODFW and PGE biologists determined there was no high quality loggerhead shrike habitat in the Covered Area.

Territory densities were determined from studies conducted on 6,177 acres on the Naval Facility from 1995 to 1997 (Morgan 2002). In subsequent studies in 2000 and 2001, territory densities were determined for both pre- and post-fire conditions. Results indicate that the number of territories in pre-burn conditions ranged from 0.56 to 0.65 per 100 acres and post-burn number of territories decreased to 0.28 to 0.34 per 100 acres (Morgan 2002).

The lower territory density of the post-burn conditions (0.28 per 100 acres) was used for the low quality burned habitat on the Covered Area. Because habitat conditions are generally poorer on the Covered Area compared to the Naval Facility, the higher post-burn territory density (0.34 per 100 acres) was determined to reflect the territory density of the low and medium habitat without a juniper component. Since there is a higher juniper component on the Covered Area compared to the Naval Facility, and loggerhead shrikes are thought to have a higher density in this habitat type, the higher pre-burn

territory density (0.65 per 100 acres) was used for areas with a dense juniper component. These territory densities are provided in **Table 2**.

Table 2 *Loggerhead Shrike Population Estimates*

Habitat Quality	*Number of Acres*				*Estimated Territories/ 100 acres*	*Territory Estimate*			
	Farm	*Farm CA[1]*	*PGE[2]*	*PGE CA[1]*		*Farm*	*Farm CA[1]*	*PGE[2]*	*PGE CA[1]*
Low in 2000 burned area	3,335	0	0	0	0.28	9.3	0	0	0
Low and Medium without juniper	1,230	3,756	141	78	0.58	7.1	21.8	0.8	0.5
Medium with juniper component	425	1,907	298	0	0.65	2.8	12.4	1.9	0
High	0	0	0	0		0	0	0	0
					Total	**19.2**	**34.2**	**2.7**	**0.5**

[1] Conservation Area

[2] Excludes acreage within PGE CA

Based on the information above, the population estimate for loggerhead shrikes on the Covered Area in 2001 is 34.2 territories on the South Farm Conservation Area, 19.2 territories on the Farm, 2.7 territories on the PGE Boardman Plant property, excluding the PGE Conservation Area, and 0.5 territory on the PGE Conservation Area.

5.2.4 Sage Sparrow

5.2.4.1 Status

The sage sparrow is Oregon state-listed as sensitive (critical) in the Columbia Basin and has no current Federal listing status (ONHP 2001). The BBS data show stable population trends for this species in the basin between 1968 and 1994 (Saab and Rich 1997). The literature suggests it was once abundant throughout sagebrush habitats, but current distribution in Morrow County appears to be limited to portions of the Naval Facility and the Covered Area (Holmes and Geupel 1998). The sage sparrow is included in this MSCCAA due to its apparent declining range and strong positive correlation with the sagebrush habitats in the Covered Area.

5.2.4.2 Range

The sage sparrow breeds in the interior West, from eastern Oregon and Washington, east to Wyoming, and south to New Mexico, most of desert and coastal California, and northern Baja California (Csuti et al. 1997).

5.2.4.3 Natural History

The sage sparrow is associated with habitats characterized by sagebrush and open ground. This species prefers nesting habitat with dense and evenly spaced sagebrush, three to six feet high. Vertical structure, habitat patch size, and vegetation density may be more important in habitat selection than shrub species, but this species is most closely associated with big sagebrush (Martin and Carlson 1998). Sage sparrows are often missing from what appears to be suitable habitat, so other unknown habitat characteristics may be important. This species prefers big sagebrush either in pure stands or interspersed with bitterbrush or rabbitbrush. Breeding territories generally do not overlap but boundaries may change slightly from day to day (Martin and Carlson 1998). Probable sage sparrow habitats in the Covered Area are illustrated on **Figure 7**. The sagebrush community east of Juniper Canyon, located on the Naval Facility, likely supports the majority of sage sparrows that still breed in Morrow County (Morgan 2001). Sage sparrows can be sensitive to habitat fragmentation, favoring larger patches of sagebrush communities. In studies conducted on the Naval Facility, this species was not found in areas with high grass and litter cover (Holmes and Geupel 1998).

Spring migrants usually begin arriving in late February, with the main spring migration in the middle of March (Gilligan et al. 1994). The sage sparrow generally breeds by April and the normal clutch size is three to four eggs. This species can raise two to three broods each year and builds a new nest for each clutch. Fall migration peaks in mid-September and most of this species leaves Oregon by October (Gilligan et al. 1994; Csuti et al. 1997). Populations fluctuate from year to year and large areas of sagebrush are often uninhabited (Gilligan et al. 1994, Csuti et al. 1997).

This species has a habit of running on the ground from shrub to shrub to make itself inconspicuous. Nests are built low in shrubs or occasionally on the ground. The selection of nest substrate may be related to the height of available shrubs and microclimate (Martin and Carlson 1998).

This species is categorized as a ground-foraging omnivore during breeding season and as a ground-gleaning granivore during the non-breeding period. This species forages on the ground usually near or under the edges of shrubs and gleans prey from lower main stems of shrubs within sage habitat. There is no information on roosting habitat for this species (Martin and Carlson 1998).

5.2.4.4 Population within the Covered Area

On the Covered Area, the only point count surveys conducted for the sage sparrow have been on PGE Boardman Plant property. This species was observed in only two of the six years that surveys have been conducted on the PGE Boardman Plant property (PGE 1996, PGE 1997, PGE 1999, PGE 2000, PGE 2001, PGE 2002a). Surveys have been conducted on the adjacent Naval Facility and breeding habitat information from these studies was used to determine suitable habitat and territory size (Morgan 2002). The population

estimate for the sage sparrow in the Covered Area is based on the identification of suitable habitat by using vegetation data and an ODFW biologist's site-specific knowledge of the area (**Figure 7**).

Based on the literature, the vegetative conditions used to determine potential habitat for the sage sparrow included areas with higher shrub cover (ranging from 10 to 25 percent) and bare ground and lower total ground cover (Holmes and Geupel 1998, Altman and Holmes 2000). The potential habitat was mapped and presented to ODFW and PGE biologists. Using this map as the basis for identifying suitable habitat, ODFW and PGE biologists categorized the quality of the habitat based on their knowledge of on-site habitat conditions and the vegetation data. ODFW identified one area as high quality sage sparrow habitat (see **Figure 7**). This area has 40 percent big sagebrush, with 10 percent cheatgrass and 50 percent cryptogamic crust. This area is known sage sparrow nesting habitat (Morgan 2001). ODFW also identified one area as medium quality habitat. This area has 25 percent big sagebrush with 10 percent cheatgrass, 25 percent bluebunch wheatgrass (*Agropyron spicatum*) and 30 percent bare ground with 10 percent cryptogamic crust. In the low quality habitat, sagebrush ranged from 15 to 35 percent, grass cover ranged from 20 to 35 percent, cryptogamic crust ranged from 5 to 25 percent, and bare ground ranged from 10 to 50 percent. There are no large tracts of sagebrush that provide habitat for this species on the PGE Boardman Plant property. The sage sparrow habitat identified in the Covered Area is located on the southern portion of the Farm and on the South Farm Conservation Area (see **Figure 7**). Territory densities were determined from surveys conducted on 1,339 acres on the Naval Facility from 1995 to 1997. In these studies, territory densities were determined for both pre- and post-burn conditions. The results show that the number of territories pre-burn ranged from 2.2 to 3.0 per 100 acres and that post-burn number of territories decreased to 1.0 to 1.5 per 100 acres. A conservative approach was taken to determine the territory densities for the Covered Area. In general, the sage sparrow habitat on the Naval Facility is thought to be higher in quality than the habitat on the Covered Area (Morgan 2002). The post-burn habitat on the Naval Facility more closely reflects the medium and low quality sage sparrow habitat on the South Farm Conservation Area (Morgan 2002). Based on this information, the higher post-burn territory density (1.5 per 100 acres) was used for the medium quality and the lower post-burn territory density (1.0 per 100 acres) was used for the lower quality habitat on the Covered Area. Since the quality of the habitat is lower on the Covered Area than on the Naval Facility, the lower pre-burn territory density (2.2 per 100 acres) was used for the high quality habitat on the Conservation Area. These territory densities are provided in **Table 3**.

Figure 7 Sage Sparrow Habitat

Table 3 *Sage Sparrow Population Estimates*

Covered Area Habitat Quality	***Number of Acres***				***Estimated Territories/ 100 acres***	***Territory Estimate***			
	Farm	***Farm CA[1]***	***PGE***	***PGE CA[1]***		***Farm***	***Farm CA[1]***	***PGE***	***PGE CA[1]***
Low	710	2,186	0	0	1.0	7.1	21.9	0	0
Medium	0	179	0	0	1.5	0	2.7	0	0
High	0	269	0	0	2.2	0	5.9	0	0
					Total	**7.1**	**30.5**	**0**	**0**

[1] ***Conservation Area***

Based on the information in **Table 3**, the sage sparrow population estimate for the Covered Area in 2001 is a total of 37.6 territories within the acreages of potentially suitable habitat listed above, with 7.1 territories located on the Farm and 30.5 territories located on the South Farm Conservation Area.

6 LAND USE CONDITIONS AND COVERED ACTIVITIES

This section provides information on the existing land use conditions and outlines the types of Covered Activities within each ownership and management parcel of the Covered Area. Activity types not outlined within this Agreement, including activities that are conducted by entities not party to or covered by this Agreement on the utility and access easements throughout the Covered Area, are not considered Covered Activities. Should a Covered Species be listed under the Federal ESA, the Permittees will be required to comply with the Federal ESA, including the take prohibition of section 9, for those activities not covered by a section 10(a) permit. The following table lists the Covered Activities for each of the management areas. The Covered Activities for each Permittee are described within this section.

Table 4 *MSCCAA Covered Activities by Management Area*

Management Area	***MSCCAA Covered Activities***	
Threemile Canyon Farms Development Areas	• General Development Activities • Agricultural Activities • Grazing • Fire Control and Suppression • Controlled Burning • Vehicle Access	• Hunting and Recreational Public Access • Dairy Facilities, Feed Lots and Associated Waste Management
Threemile Canyon Farms Conservation Areas	• Vehicle and Equipment Access • Discing • Drilling (i.e., for seeds) • Fire Suppression • Prescribed Burning • Fence Removal, Construction and Maintenance • Biological Monitoring and Research	• PGE Access • Grazing • Controlled Hunts • Cleanup of Abandoned Refuse Site • Non-native Species Control • Pedestrian Access within Farm Conservation Areas
PGE Generation and Transmission Areas	• Electric Power Generation • Electric Power Transmission • Coal Storage and Handling • By-Product Storage, Handling and Disposal • Operation of Carty Reservoir • Fence Maintenance	• Fire Suppression • Grazing • Environmental Monitoring • Recreation • Vehicle Access • Mammal Control
PGE Conservation Area	• Fence Maintenance • Vehicle Access	• Fire Suppression • Grazing • Environmental Monitoring • Recreation • Mammal Control

6.1 THREEMILE CANYON FARMS AND SUBTENANTS/SUBSIDIARIES (EXCLUDING FARM CONSERVATION AREAS)

Threemile Canyon Farms is the largest contiguous center pivot irrigation farm in North America and houses the largest dairy operation in Oregon. The Farm has developed approximately 38,440 acres. The Farm grows potatoes for the annual average consumption of seven million people. Alfalfa, corn, and winter wheat are grown to feed cattle in the dairy operations.

In an effort to increase farm-wide production efficiencies and reduce the environmental impacts of its farming operations, the Farm has created a sustainable farming practice by utilizing a closed loop system in which farm wastes are recycled on site and fed back into the farm system. In this manner, agricultural inputs are reduced and the only outputs produced are those that provide economic benefit (farm crops and dairy products for human consumption).

There are approximately 9,500 acres of land interspersed among the irrigated circles, referred to as non-productive agricultural areas or "triangles" (**Figure 2**) These triangles average approximately seven acres in size and may be less than an acre. Non-productive agricultural land includes areas as large as several hundred acres. Some of these areas are characterized by non-native species that provide little value to native wildlife; however, depending on size and location, these areas may provide nesting, foraging and over-winter cover habitat. The Farm has replanted approximately 1,000 acres of non-productive agricultural lands with native grass cultivars as a weed control method. Native vegetation helps to prevent the spread of non-native weedy species to other areas within the Farm and adjacent lands, particularly those areas providing more valuable wildlife habitat. While the Farm voluntarily manages these areas to control weeds, the Farm may choose to develop and/or irrigate these areas on a rotation basis in the future.

There are approximately 26,000 acres of undeveloped areas (undeveloped portions of the Farm) within the Farm property (**Figure 2**). These undeveloped portions of the Farm are located primarily within Threemile Canyon, Sixmile Canyon, the Willow Creek Canyon and the northern sections of the Farm property, adjacent to Interstate 84. The Farm has recently conducted a vegetation survey of these undeveloped portions to map potential habitat for the Covered Species in order to estimate their populations within the Covered Area and to assist the USFWS in estimating take. Due to topography and soils, grazing is currently the only activity within the undeveloped areas on the Farm; however, as a voluntary measure apart from this MSCCAA, the Farm has eliminated grazing from the wetland and riparian areas within Sixmile Canyon to protect water quality. As an additional voluntary measure, the Farm does not allow recreational hunting or shooting in the undeveloped areas during the ferruginous hawk nesting season (March 1 to July 15).

Boeing holds a lease on the radar range, which is owned by the Farm and is located within the Covered Area (**Figure 2**). The lease expires on December 31, 2040. Boeing

conducts radar detection tests on different aviation structures, such as various wing formations, to determine if they are detected by radar signals. These activities are confined to the asphalt strip on the radar range. The existing gravel road to the asphalt strip is maintained by grading. Grading occurs within the existing roadway.

The following section discusses the operation of the Farm and the activities that are required to manage its productive and non-productive agricultural areas. These activities include general development activities, laying irrigation pipeline, ground clearing, discing, fertilizing, planting crops, irrigation, harvesting, grazing, fire control and suppression, controlled burning, vehicle access, hunting and recreational public access, and operating dairy facilities, feed lots and a methane digester. Each of these are considered the types of activities covered under this Agreement (Covered Activities) for Threemile Canyon Farms. While it is impossible for the Farm to foresee all activities and the technological advances that will direct the operation of the Farm over the next 25 years, this list of activities is as complete as currently possible. Activities that are not described in the following list are not covered under the terms and conditions of this Agreement and would be subject to their own ESA compliance, should it be required.

General Development Activities The Farm may develop its properties in support of the overall Farm management and property development. Construction of farm products processing facilities, materials storage, staging areas, and other farm and commercial activities may occur in these areas. Road building, utility development (maintenance, repair and improvement), land clearing, construction of commercial facilities, and other activities that may occur throughout the Farm development area have the potential for disturbing habitat. By inclusion of general development activities in this MSCCAA, the Farm's ESA section 10 permit will cover such future activities but only to the extent that take would occur from any resulting ground disturbance. For example, the permit would not extend to the impacts from operation of any such developments unless covered elsewhere by this Agreement.

Agricultural Activities

Laying Pipeline The first phase in developing ground for irrigation is to lay the irrigation pipeline. Excavators are used to excavate soil as deep as four feet. The pipe is installed, then soil is replaced over the top of the trench and pipe. This work is generally conducted from December through January. While much of the irrigation pipeline for the Farm has already been placed, the Farm intends to lay pipeline and irrigate 2,560-acres of undeveloped area in the southwest and northeast portions of the development area (note “Future Agricultural Areas” on **Figure 2**) and may irrigate other suitable areas within the development area. While not anticipated during the Boeing lease period, the radar range may also be converted to irrigated agriculture in the future.

Agricultural Ground Clearing After laying the pipeline, the next phase is to clear the ground of vegetation. Brush is cleared from the surface and a "ripper" is used to plough the soil 18 to 24 inches deep. The ground is then leveled. Wind blow may create undulations in the surface and the ground may be re-leveled occasionally to restore a flat surface. The ground is only cleared in areas to be irrigated. Irrigation is used to control wind erosion. The ground clearing is generally conducted from December through January.

Discing Discing is used to alter vegetation, prepare soils for seeding, and for fire suppression. The discs are wheel-mounted steel discs, which are dragged behind farm equipment and plough the soil to a depth of 12 inches. Discing may be used throughout the Covered Area for fire suppression activities.

Fertilizing Prior to planting, the soil is fertilized using liquid fertilizer distributed through the irrigation system. Fertilizers are applied according to state requirements.

Planting Crops The crops are planted either by drilling seeds or with a potato planter. Seeds and potatoes are planted to within six inches of the surface. Agricultural products currently grown include potatoes, corn, wheat, mint and alfalfa but the Farm and its subsidiaries or subtenants may grow other crops in the future.

Irrigation Crops are irrigated using a center pivot irrigation system. Water and energy conservation is achieved through a precise irrigation sprinkler package, pipe modifications, sophisticated soil moisture measurement and a comprehensive monitoring system. Irrigation is conducted from March through October.

Harvesting Potatoes are harvested from August through November by digging potatoes from the soil with mechanical equipment. Corn is harvested from August through November by cutting the plant at the base. Wheat is harvested from July through September by cutting at the base. Mint is harvested from the end of June through September by cutting at the base. Alfalfa is harvested five times between May 1 and October 30, also by cutting at the base. All harvested material is hauled in trucks over existing roads.

Grazing Threemile Canyon Farms manages the current grazing lease over the Farm and the Farm Conservation Areas. This lease continues until June 30, 2005 and covers both cattle and sheep. The lease will not be extended past 2005 on the Conservation Areas. In addition to grazing, other associated activities include vehicle access, water truck access, location and use of watering stations, installation and maintenance of fences, and horse and rider access for livestock management. In 2001 and 2002, grazing began in mid-

October and ended in mid-May. The number of cattle was gradually increased through the winter from approximately 700 head to approximately 1100 head.

In areas dominated by cheatgrass (which is highly flammable), grazing can reduce fire frequency and intensity (Vallantine 2001). Understanding the role of cheatgrass in the arid west is important for understanding the effects of grazing. The frequency of fires caused by the dominance of cheatgrass largely prevents perennial grass or shrub establishment. For this and other reasons, removal of livestock alone will not reduce fire frequencies and may worsen the frequency and intensity of fires by increasing accumulation of flammable litter. In addition, since the dominance of cheatgrass in many areas has created a stable community that will not be changed by removal of cattle, continuation of low-intensity grazing in these degraded areas may be beneficial to the landscape (USDA 1997).

Fire Control and Suppression Fire control and suppression is required for the non-irrigated areas of the Farm and all wildfires are fought aggressively, providing for firefighter safety first, as well as the protection of property. The goal of the fire control and suppression methods is to minimize the extent of burned area. The Farm uses water tanks and sprayers for water suppression and uses farm discs or bulldozers to cut off the head of the fire to stop forward movement. The Farm has first response responsibility for wildfires on the Farm Conservation Areas; therefore, fire control and suppression is a Covered Activity for the Farm on the Farm Conservation Areas as well. Water tanks and sprayers that have been used for agricultural applications are rinsed thoroughly with clean water to remove herbicide and pesticide residues before use on the Farm Conservation Area.

Controlled Burning Controlled fire will likely be used for weed control on the non-productive agricultural areas as well as other areas on the Farm where weed outbreaks occur. Controlled burns will be designed to prevent impacts to the Covered Species and their habitat. Controlled burning typically requires access by trucks fitted with water tanks and pumpers and manual clearing along fire breaks.

Vehicle Access Vehicle access is required throughout the Farm for various activities associated with Farm management. Access into the Farm is currently via Threemile Canyon Road and Tower Road off Interstate 84 to the north. Internal roads exist throughout the Farm and additional roads will be constructed within the Development Area to serve the Future Agricultural Areas.

Hunting and Recreational Public Access Hunting has been allowed in certain portions of the development area in the past and, through coordination with ODFW, the Farm may approve controlled hunting on its property in the future. Access locations, timing, number of hunters, and other associated factors will be determined by the Farm and ODFW. The Farm and ODFW have entered into a Memorandum of Understanding (MOU) that addresses future hunting considerations (**Appendix H**).

The Willow Creek Wildlife Recreation Area and the Columbia River Shoreline Area (illustrated in **Figure 2**) are open to the public and require access through the Covered Area; however, all recreational public access through the Farm is controlled.

Dairy Facilities, Feed Lots and Associated Waste Management There are currently three dairy facilities and several feed lots operated by the Farm and its subsidiaries. The dairy facilities and feed lots are located within the Farm Development Area. Each of these operations has obtained all necessary permits, including the Confined Animal Feeding Operation permits. This Covered Activity includes all permitted dairy and feed lot operations within the Farm development area of the Covered Area.

The Farm intends to construct and operate a methane digester adjacent to the dairy facilities in the center of the Development Area. The manure from the dairies on the Farm will be processed into fertilizer and "green power" methane gas. The system will include cement gravity flush alleys, settling tanks, solids separator, a 20-acre lined collection lagoon and methane digester with two 4.5 million-gallon-capacity tanks that will produce 4.2 megawatts of "green power." Air permits are not required for the digesting process due to the low emission levels.

6.2 FARM CONSERVATION AREAS (EXCLUDING DEVELOPMENT AREA OF FARM)

Threemile Canyon Farms has dedicated two distinct areas within its property boundary as permanent Farm Conservation Areas (**Figure 2**). These two blocks total approximately 22,600 acres and represent some of the highest quality plant communities within the Covered Area. TNC manages the conservation areas through a 40-year lease from Threemile Canyon Farms. It is the intent of Threemile Canyon Farms to sell fee title for the Farm Conservation Areas to TNC or another appropriate third-party transferee.

Management of the Farm Conservation Areas is focused on protecting and improving, to the greatest extent practicable, the native vegetation communities that provide habitat for native species, including the Covered Species. Management within the Farm Conservation Areas will include activities necessary for habitat management purposes. These activities include vehicle access, discing, drilling, fire suppression, prescribed burning, fence removal, construction, and maintenance, biological monitoring and research, PGE access, grazing, controlled hunts, cleanup of abandoned refuse sites, non-native species control, and pedestrian access. Each of these is considered the types of activities covered under this Agreement (Covered Activities) for TNC. The following sections briefly describe how these activities are currently conducted; however, technological advances may alter how these activities are conducted in the future.

Vehicle and Equipment Access Management of the Farm Conservation Areas will require vehicle access for the purposes of research; monitoring and implementing management activities; enforcing use regulations; and suppressing wildfires. Prevention

measures will be developed in consultation with the Farm, PGE, USFWS, and ODFW and implemented to minimize the spread of weeds by vehicles and personnel. For example, TNC will inspect vehicles and equipment and remove, as practicable, seed-bearing weeds before accessing weed-free or high quality native habitat areas.

Discing The discing that may be required on the Farm Conservation Areas is similar to the discing conducted by the Farm for agricultural purposes. For conservation purposes, discing may be used to alter existing vegetation and prepare the soils for seeding of native species. Discing is also used for fire suppression, where it has proven to be an important tool for property protection. Discs are wheel-mounted steel discs that are dragged behind tractors or similar farm equipment.

Drilling Drilling refers to the shallow cutting of a small trench, into which seeds are placed and the soil is then replaced over the seeds. Drilling equipment is dragged behind tractors or other farm equipment. Drilling may be the only means to successfully plant the seeds necessary to achieve native plant community restoration.

Fire Suppression Uncontrolled fire can pose a significant threat to native vegetation communities as non-native species often increase following burns. TNC and Threemile Canyon Farms prepared a Wildfire Response Plan for the Farm Conservation Areas (**Appendix I**). Fire control measures will benefit most species by protecting large shrub patches, nesting trees, and native grasses, while minimizing the potential for invasion of cheatgrass and other noxious species. Threemile Canyon Farms has first response responsibility for wildfire on the Farm Conservation Areas; therefore, fire suppression is a Covered Activity for the Farm on the Farm Conservation Areas as well.

The goals for fire suppression are to minimize the extent of the burned area and to limit ground disturbance to the greatest extent possible. Direct attack with water is the preferred suppression strategy. If heavy machinery, such as farm discs or bulldozers, is used, it will be used to cut off the head of the fire to stop forward movement.

After an uncontrolled fire within the Farm Conservation Areas, TNC will assess the severity of the fire, develop a restoration plan to address any active management or necessary mitigation measures (such as restricting grazing from sensitive areas) needed for habitat recovery, and increase monitoring intensity and frequency to track natural recovery and/or active restoration efforts. The active restoration would depend on the intensity of the fire and could include weed control, seeding of native plants (grasses and, as appropriate, shrubs). All plant materials used for restoration would come from locally collected seed stock. TNC has started to collect from the conservation areas to develop seed stock for the site.

Prescribed Burning When adequately controlled, fire has proven to be an effective management tool in the Columbia Plateau. Restoring fire as a natural process is important in grassland ecosystems. Controlled fire will likely be used for habitat restoration and

management purposes on the Farm Conservation Areas. Fire management strategies, control methods, and levels of potential use have not yet been determined but all prescribed burns will be designed to prevent impacts to the Covered Species and their habitat. Prescribed burning typically requires access by trucks fitted with water tanks and pumpers and manual clearing along fire breaks.

Fence Removal, Construction and Maintenance The Farm Conservation Areas have extensive fencing in place, mostly barbed wire on wood or metal posts. Ongoing grazing will require fence maintenance to control livestock in designated grazing units. Fencing will be removed where possible (i.e., removal does not conflict with grazing needs) to improve wildlife conditions. Fencing may also be constructed for habitat maintenance purposes, such as for trespass management and wildlife and livestock exclusions. Fencing activities will require the use of pickup trucks and small farm equipment.

Biological Monitoring and Research In order to accurately establish baseline conditions and to determine the potential effects of the conservation measures, TNC will monitor the biological conditions within the Farm Conservation Areas. This monitoring will include vegetation and wildlife surveys. Research may be required to test and develop best management practices to protect habitats and species. Research may involve temporarily disturbing, handling, tagging, or collecting Covered Species and impacting their habitats. Though most of this activity will be conducted by pedestrian surveys, use of pickup trucks and similar equipment may be necessary for access. TNC will coordinate with ODFW and USFWS to obtain the appropriate permits for biological monitoring and research.

PGE Access A limited number of employees (approximately 19) commute through a portion of the South Farm Conservation Area to access the PGE Boardman Plant property. TNC will continue to allow limited access, provided that the gate at Immigrant Road remains locked and use is limited to PGE, the Farm, ODFW, and TNC personnel. Employees are briefed on the responsibilities of using the roads. PGE will meet weed control requirements established by TNC. Maintenance of the access road will be the responsibility of PGE and requires prior notice to TNC of maintenance activities.

Grazing The Farm Conservation Areas have been grazed by one primary grazing permittee for approximately 60 years. This grazing lease is currently managed by Threemile Canyon Farms and will expire on June 30, 2005, without the right for renewal. Most of the grazed area is not heavily impacted due to distances from watering sites and rotation of livestock between seasons. Grazing activities include access by vehicles and horses to monitor and move cattle, provide water and maintain fences. TNC may conduct research on the effectiveness of using cattle grazing as a method for reducing non-native annual grasses and/or the potential and intensity of wild and/or prescribed fires. If proven successful, grazing may be employed as a management tool in limited areas and under specific prescriptions that maximize the positive benefits and minimize the negative benefits to Covered Species and their habitats. TNC will work with USFWS to determine

methods for reducing impacts of grazing and livestock management activities on Covered Species and their habitats on the Farm Conservation Areas.

Controlled Hunts ODFW is interested in maintaining a controlled hunt on the Farm Conservation Areas. Hunting may be allowed in the future if it is deemed consistent with the conservation strategies agreed to and would not raise safety issues for TNC or the Farm. If it is allowed on the Farm Conservation Areas, hunting would be limited to pedestrian access. Access locations, timing of hunts, number of hunters, and other issues will be determined by the Farm, TNC, PGE, USFWS and ODFW for the Farm Conservation Areas.

Cleanup of Abandoned Refuse Sites Abandoned refuse sites exist in the South Farm Conservation Area. Farm trucks and a small backhoe will be required for cleanup activities. When possible, the historical route into and out of the sites will be used for access. Refuse materials will be removed from the South Farm Conservation Area and disposed of in an appropriate and legal location.

Non-native Species Control Non-native species, especially plants, can have a major impact on native habitats and species. Currently, the primary concern is non-native invasive plant species. Control of these species may involve hand pulling, covering with plastic, and/or using heat or infrared treatments. Application of control methods will require vehicular and pedestrian access. While non-native species control includes the application of herbicides, the Permittees have concurred that this Agreement does not cover the application of herbicide or fungicide chemicals.

Pedestrian Access within Farm Conservation Areas Pedestrian access will be allowed for passive recreation, research, and educational uses. Pedestrian access to the Oregon Trail will be maintained.

6.3 PORTLAND GENERAL ELECTRIC (BOARDMAN PLANT)

The Boardman Coal Plant is the largest power plant owned and operated by PGE and the only coal-fired power plant in Oregon. The Boardman Plant began commercial generation of electricity in August 1980. This Plant has a maximum dependable capacity of 585 megawatts and burns low sulfur, sub-bituminous, western states coal. Environmental impacts from operation of the plant have been minimized by the best practical design and utilization of high efficiency pollution control systems.

Adjacent to the coal-fired plant is Carty Reservoir, a 1,400-acre industrial water supply reservoir. It was constructed and filled with water in 1977 to provide for plant equipment cooling, process water makeup, and storage for agricultural irrigation water for Threemile Canyon Farms. The reservoir, in the upper reaches of Sixmile Canyon, has a design pool level of 677 feet mean sea level and a volume of 38,300 acre-feet (of which 11,000 acre-feet are designated for annual irrigation withdrawal and renewal). The reservoir also

provides resting, feeding and nesting areas for waterfowl and shorebirds, and drinking water for wildlife.

Within the PGE Boardman Plant property, there are approximately 1,300 acres of undeveloped area. These areas are characterized by a variety of native shrub-steppe habitats. PGE has conducted vegetation community surveys on these undeveloped areas and the results are illustrated in **Figure 3**.

The following is a list of PGE activities that are either ongoing or may be undertaken in the future within the PGE Boardman Plant property, or within other portions of the Covered Area where PGE has easements or comparable management authority. These activities include all activities identified in the Boardman Power Plant Site Certificate Agreement (and subsequent amendments) between the State of Oregon and PGE. These include electric power generation and transmission; coal storage and handling; by-product storage, handling and disposal; operation of Carty Reservoir; fence maintenance; fire suppression; grazing; environmental monitoring; recreation; vehicle access; and mammal control. All current and future PGE activities listed above and described herein for the Covered Area are considered Covered Activities for the purposes of this Agreement and the associated ESA section 10(a) permit. The following sections briefly describe how the current activities are conducted and how potential future activities may be conducted; however, technological advances may alter how these activities are conducted in the future.

Electric Power Generation Electric power generation takes place inside the Boardman Power Plant. The Plant occupies approximately six acres and is located just north of Carty Reservoir (**Figure 8**). The Plant converts energy from coal into electric power energy. Coal enters the Plant on conveyors and is pulverized into a fine powder. The coal powder is blown into the combustion chamber of a boiler where it burns at temperatures reaching 3,000° F. Water in large sections of tubes in the boiler is heated until it becomes superheated steam at 1,000° F. This high-pressure steam is used to spin the turbine-generator which generates electric power. Low-pressure steam exits the turbine and is condensed back to water by passing it over a system of coils filled with cooling water from Carty Reservoir. Once condensed, the water is recycled back to the boiler to repeat the process. Transformers are used to increase, or "step-up," the voltage of the electric power from the generator before it leaves the Plant through high-voltage transmission lines. As coal is burned in the boiler, it is reduced to combustion gases and non-combustible ash. Pollution control equipment removes and collects 99.7% of the ash, which can then be sold for off-site use as a concrete additive or disposed of on site in the by-product disposal area. Excess combustion air and the combustion gases exit the Plant through a 656-foot tall stack. Electric power generation and PGE's management and use of the Boardman Plant property are PGE Covered Activities for the purposes of this Agreement. Power transmission, coal handling, cooling water, and by-product disposal are major external auxiliary systems which are addressed as separate Covered Activities.

Electric Power Transmission Existing transmission facilities include a 230-kV line with a 125-foot wide right-of-way running north and west of the Plant to the PP&L Dalreed Substation, and a 500-kV line running west along a 150-feet wide right-of-way. PGE intends to operate the existing power plant at full capacity and deliver power through the existing transmission lines running from the plant through PGE easements within the Covered Area (**Figure 8**). PGE also intends to perform all maintenance necessary to continue operation of the transmission lines. Transmission line maintenance consists of routine visual inspection of towers for general condition and subsequent repair of any physical damage to structures, electrical insulators, or wires. Access for maintenance is by existing unimproved roads within the rights-of-way. PGE's maintenance and use of the existing power transmission lines are PGE Covered Activities for the purposes of this Agreement.

Coal Storage and Handling Coal is delivered to the site by railcar on a PGE railroad spur that enters the PGE Boardman Plant property through the Covered Area from the north (**Figure 8**). The coal is stored in the coal yard located adjacent to the Power Plant, and is fed into the Plant through a conveyor belt system. The coal yard is encircled and enclosed by the rail line that is used to deliver coal to the site. Strong prevailing winds blow coal dust towards the east, away from the coal handling area. PGE Boardman Plant property lying east/northeast of the coal yard was acquired in part as a deposition area or buffer for fugitive coal dust. The Plant's Title V Air Operating Permit issued by the Oregon Department of Environmental Quality (ODEQ) requires the Plant to minimize fugitive dust from the site. The Plant utilizes a number of methods to minimize the generation of coal dust, including compacting inactive areas of the coal pile and spraying water on the pile when reclaiming extremely dusty coal. Mechanical methods and dust suppressant applications are used at transfer points in the conveyor system transporting coal to the plant. PGE uses aerial photography to monitor the deposition of fugitive coal dust and reports the results to ODEQ in the Boardman Plant Annual Ecological Monitoring Report. Deposition of fugitive coal dust from continuing operation of the existing coal yard is a PGE Covered Activity for the purposes of this Agreement.

By-Product Storage, Handling and Disposal Currently, the only solid combustion by-product produced at the Power Plant is ash. Although PGE sells most of the ash produced, some ash is deposited in a landfill on PGE Boardman Plant property southeast of Carty Reservoir (**Figure 8**). The landfill is regulated by the ODEQ under the Plant's Water Pollution Control Facility permit and fugitive dust from the site is regulated under the Plant's Title V Air Operating Permit, also issued by the ODEQ. Prior to originally opening the landfill, the ash was tested for permeability and toxicity leaching characteristics; results of the tests are documented in the Boardman Plant Ash Disposal Plan (PGE 1978). Flyash, which is the largest portion of ash generated, was found to have properties much like concrete.

Figure 8 PGE Easements through the Covered Area

Once hydrated, the flyash solidifies and hardens into an impermeable solid, which essentially seals the landfill and prevents leaching of any toxic materials. Daily, whenever flyash is deposited, water is applied for dust control and to hydrate the ash. Monitoring wells around the landfill are sampled semi-annually to test for evidence of leakage and results are reported to ODEQ in the Boardman Plant annual report for the groundwater monitoring program. The Boardman Plant Ash Disposal Plan contains the design specifications for development of the landfill. The current landfill is approximately 40 acres; however, the Plan allows development of 220 acres. When the existing 40-acre site reaches capacity, PGE will develop another 40-acre landfill for continuing ash disposal. The new landfill will be developed next to the current landfill, which will then be decommissioned. The Boardman Plant Ash Disposal Plan stipulates that "when disposal sites have been fully developed, a minimum of 24 inches of compacted indigenous soil will be placed over the ash as required for reclamation." Once the current landfill becomes full, PGE intends to decommission the site by covering it with at least 24 inches of soil. In the area reserved for byproduct disposal south of Carty Reservoir, PGE anticipates having no more than approximately 40 acres developed and in use at any one time. It is possible that over the term of this Agreement, only one additional landfill will be needed for ash disposal. New environmental rules for controlling emissions may necessitate installing "scrubbers" to remove sulfur dioxide (SO_2) from the boiler exhaust gas. The by-product of this process will mostly be a calcium sulfate product known as gypsum. This gypsum may be sold off site as a product for manufacturing wallboard or solidified and deposited in a landfill on site. In total, PGE may eventually need to develop most of the Boardman Plant designated disposal area located south of Carty Reservoir for future by-product disposal **Figure 8**). In addition, approximately 350 acres of the undeveloped area east of the coal yard that currently functions as a deposition zone for fugitive coal has been designated for by-product disposal if needed in the future (**Figure 8**). Any development beyond the scope of the current Ash Disposal Plan, such as future plans to develop the area east of the coal yard, will require additional permitting by ODEQ. Continuing and future by-product storage, handling, disposal activities, and decommissioning activities associated with current and future by-product disposal facilities are PGE Covered Activities for the purposes of this Agreement.

Operation of Carty Reservoir Water from Carty Reservoir is used to provide the Boardman Plant with cooling water, fire water, and make-up water for the boiler. Additionally, low level processed Boardman Plant waste water is returned to the reservoir. Because of these uses, the reservoir is classified as an industrial waste pond and regulated by ODEQ under the Plant's Water Pollution Control Facility permit and the Boardman Plant Site Certificate. Samples are collected monthly to verify compliance with maximum contaminant levels established in the permit and results are reported to ODEQ in the Boardman Plant Annual Ecological Monitoring Report (PGE 2001). PGE owns water rights for adding the make up water necessary to maintain the reservoir at the desired level. Make-up water is supplied by the Farm from the Willow Creek pump

station and PGE can supply irrigation water back to the Farms from a pumping station located on the reservoir. The reservoir was designed for a maximum pool elevation of 677 feet and the minimum level for Plant operation is 664 feet. Over the years of operation, dissolved salts have concentrated in the reservoir to the point that Plant operation could be impeded. Although the level of salts poses a problem to the Plant, the water is satisfactory for irrigation purposes. PGE plans to improve water chemistry by providing irrigation water from the reservoir to Threemile Canyon Farms during the irrigation season, then raise the level back up with make-up water at a later time to restore the water level, effectively diluting the reservoir. The typical range of operating level will be from 664 feet to 670 feet. All actions necessary to fully operate Carty Reservoir during times of normal operation are PGE Covered Activities for the purposes of this Agreement.

Fence Maintenance PGE has fences that surround its property boundaries, primarily for livestock exclusion. Fences are barbed wire with metal posts and maintenance generally involves manual repair of holes and breaks in the fence or replacement of worn-out sections. Fencing activities requires the use of pickup trucks or smaller off-highway-vehicles. Fence maintenance has typically been performed by the person grazing livestock on the adjacent property, however, PGE fence maintenance is a Covered Activity for the purposes of this Agreement.

Fire Suppression PGE maintains a fire brigade at the Boardman Plant that responds to fires on PGE property with the intent of protecting the Plant and related facilities. Techniques for fire suppression can include clearing vegetation for fire breaks in addition to use of a one-ton truck with water tank. Details are contained in the PGE Boardman Plant Wildland Fire Response Plan (**Appendix J**). Fire suppression is a PGE Covered Activity for the purposes of this Agreement.

Grazing Livestock grazing has occurred on the Boardman Plant property in the past. Although currently not authorized, PGE maintains the option of allowing grazing on its Boardman Plant property consistent with the company's grazing policy outlined in the Technical Basis Document (TBD-015) for Land Management at the Boardman Coal Plant (PGE 1994). The policy stipulates that grazing will only be allowed in sections 26 and 35 (Township 3 North, Range 24 East) and no more than once every four years. The policy further states that livestock will not be placed on the range before the range can sustain grazing, nor left on the range beyond its ability to support grazing. Environmental Services' staff at PGE have defined this to mean that grazing will not be permitted until after December 1 and will not be allowed beyond April 15. The policy also states that the number of animal units permitted will not exceed 98 percent of the carrying capacity of the lands being grazed (based on an appropriate Federal or state standard for grazing on public lands of a similar type). When grazing is permitted, PGE Environmental Services staff will coordinate with USFWS and use professional judgment to determine the actual length of the grazing period and number of livestock permitted, within the standards

described above. Watering tanks will be used to provide water for livestock, but must be moved periodically during the grazing period to prevent excessive use and damage to rangeland in the vicinity of the tanks. PGE's grazing policy is consistent with the company's objective of maintaining these lands in their natural state for wildlife habitat and environmental monitoring or research until such time they are used for power production. Grazing on PGE Boardman Plant property, as per the current policy in TBD-015, is a Covered Activity for the purposes of this Agreement.

Environmental Monitoring Environmental monitoring programs have been developed and implemented for the Boardman Plant in accordance with the Oregon Administrative Rules, the Plant's Water Pollution Control Facilities permit and the Plant's EFSC Site Certificate. Through the program, PGE monitors water quality, soil, vegetation (natural and cultivated), and wildlife in the vicinity of the Plant. Monitoring activities include surface water sampling, groundwater sampling, wildlife surveys, and vegetation surveys. Environmental monitoring typically requires use of pickup trucks or SUVs to access monitoring sites. All current and future elements of PGE's environmental monitoring program as described above are Covered Activities for the purposes of this Agreement. PGE will coordinate with ODFW and USFWS should any permits be required for its environmental monitoring activities.

Recreation In the past, PGE has allowed limited public access in conjunction with ODFW controlled hunts. Although this program is currently suspended on the PGE property, PGE would like to maintain this option for the future. ODFW will consult with PGE and USFWS on controlled hunt matters including access locations, timing of hunts, number of hunters, safety, and other issues that may arise. PGE may consider other recreational uses of its Boardman Plant property as appropriate in the future. ODFW controlled hunts and other recreational uses deemed appropriate in the future are Covered Activities for the purposes of this Agreement.

Vehicle Access Tower Road is the main access road from Interstate 84 (**Figure 8**). In addition, PGE maintains paved and unpaved roads on the developed portion of its Boardman Plant property. Unimproved roads on undeveloped PGE lands are used for activities such as environmental monitoring, fence maintenance, and fire suppression. PGE vehicle access is a Covered Activity for the purposes of this Agreement.

Mammal Control In the past, PGE has had to remove burrowing mammals, primarily yellow-bellied marmots, at the West Dam on Carty Reservoir. The burrowing behavior of these mammals can result in damage to the structure. Trapping and/or shooting is used to control these burrowing mammals. No mammal control activities are allowed or permitted on the Boardman Plant property outside of developed areas or away from plant-related facilities. Mammal control at the West Dam and at other plant-related facilities such as Saddle Dam is a Covered Activity for the purposes of this Agreement.

6.4 OREGON DEPARTMENT OF FISH AND WILDLIFE (COVERED AREA)

ODFW maintains public access at the Willow Creek Wildlife Area and may organize and participate in controlled hunts within the Covered Area. ODFW will participate in research, monitoring and management activities in the radar range and the Conservation Areas with the Farm, PGE, TNC, and potentially other parties. This Agreement considers the Covered Activities for ODFW to be the same as those described for the Farm, PGE and TNC as they relate to vehicle access, biological monitoring and research, recreational activities and controlled hunts.

6.5 ADAPTIVE MANAGEMENT (FARM AND PGE CONSERVATION AREAS)

Adaptive management is a formal, systematic approach to learning from the outcomes of management actions, accommodating change and continually improving management practices. Adaptive management will be used to guide actions within the PGE and Farm Conservation Areas as new scientific information becomes available, in particular, the Conservation Commitments within the Conservation Areas. It is the intent of this Agreement to provide enough flexibility in the Covered Activities and Conservation Commitments to allow for adaptive management strategies within Conservation Areas. New information could be the result of new scientific information on the Covered Species from outside sources, new scientific information discovered as a result of this Agreement's monitoring requirements (Section 13), and development and approval of recovery plans by the USFWS for the Covered Species. New information could result in the need within the Conservation Areas to adjust or add Covered Activities and/or Conservation Commitments under this Agreement. To facilitate adaptive management strategies, modifications and/or amendments to this Agreement may be proposed by the Farm, TNC, PGE, ODFW or USFWS as described in Section 7.6. New management techniques not described in this Agreement and modifications or amendments to the Agreement, which are developed as part of an adaptive management program, will not be implemented except by mutual written agreement of the Parties.

7 CONSERVATION COMMITMENTS AND RESPONSIBILITIES OF THE PARTICIPATING PARTIES

All Signatories to this MSCCAA are committed to its implementation and to its conservation goals of the Covered Species. This Agreement is a legally binding contract between each Signatory that is effective on the date of the last signature after its final approval by USFWS. Subject to this Agreement and the accompanying permits, the Conservation Commitments and responsibilities of the Signatories are discussed in the following section. These conservation measures meet the Candidate Conservation Program criteria that, if implemented on other similarly situated properties, would preclude or remove the need to list the Covered Species. In this section, the term "protect," used in reference to a native community type or Covered Species habitat,

means to support the community by either preventing development, minimizing harmful disturbances, or fire management. The term "improve" means to attempt to restore the native plant community through weed control or other restoration methods.

7.1 THREEMILE CANYON FARMS

7.1.1 Conservation Commitments

The following are conservation measures that Threemile Canyon Farms will implement through this Agreement. These measures are expected to benefit the Covered Species within the Covered Area. In this section, the term "undeveloped portions of the Farm" is defined as those areas within the Farm boundary that are not currently irrigated (**Figure 2**). While committing to these conservation measures, the Farm may alter the Development Area using the standard agricultural and development practices described as its Covered Activities.

7.1.1.1 To Benefit All Covered Species

1. Threemile Canyon Farms has committed significant financial resources to develop this MSCCAA and the related technical and public documents. The Farm has led the coordination efforts of TNC, PGE, ODFW, and USFWS in developing the management plans and Conservation Commitments embodied within this MSCCAA.

2. A total of 22,600 acres within the Farm have been designated as Farm Conservation Areas. As part of Threemile Canyon Farm's conservation planning and commitments relating to the MSCCAA, these areas are subject to a permanent conservation easement. The conservation easement will ensure the permanent protection of the Farm Conservation Areas. A copy of the conservation easement for the Farm Conservation Area is provided in **Appendix D**.

3. The Farm shall create and maintain a 250-foot buffer zone separating the Farm Conservation Areas from farm activities. This buffer zone is illustrated in **Figure 2**. There will be no development within the buffer zones; however, vehicle access and emergency fire control and suppression activities are allowed. The Farm will continue to control weeds within the buffer zone through hand spraying although herbicide use is not a Covered Activity.

4. Threemile Canyon Farms will fund TNC's management activities within the Farm Conservation Areas up to a maximum of $130,000 (indexed for inflation) annually. TNC's actual costs will, therefore, determine the specific level of annual funding up to the maximum $130,000 (indexed for inflation), and will continue until an endowment is in place to meet annual funding needs. Under this scenario, TNC will continue to bill the Farm for actual costs, up to a maximum of $130,000 (indexed for inflation). Alternatively, the Farm is committed to fund up to a maximum of $2,500,000 (dependent upon the sale price) for the endowment from the proceeds of the sale of the Conservation Areas for long-term funding security.

5. In the absence of emergency circumstances, such as responding to wildfire, the Farm will notify ODFW and USFWS at least 30 days in advance of when they expect to incidentally take any Covered Species to facilitate translocation efforts.

6. The Farm has first response responsibility for controlling and suppressing wildfire on the Farm Conservation Areas and the undeveloped portions of the Farm. The Farm will implement fire control and suppression measures according to the Wildfire Response Plan, which is included as **Appendix I**. The Wildfire Response Plan was developed in association with TNC. The Farm will provide copies of the Plan to the Boardman Fire Protection District, Morrow County Sheriff's Office, and the Morrow County Emergency Management Department. Fire control and suppression measures will benefit most species by protecting large shrub patches, nesting trees, and native grasses, while minimizing the potential for invasion of cheatgrass and other noxious species.

7. Subject to the terms of the existing grazing lease agreement, the Farm will not allow grazing on the undeveloped portions of the Farm and the Conservation Areas between May 15 and November 1 beginning in 2004. Changes may result in improvements in the control of non-native species, reduction of the risk of wildfire, minimization of disturbance to native habitats and Covered Species associated with access and fence maintenance activities required to manage livestock on the Farm Conservation Areas. Once the grazing lease on the Conservation Areas is terminated in 2005, grazing will only be allowed if it is shown to have a net positive benefit to the Covered Species. The Farm will coordinate between the grazing lessee (if applicable), TNC and USFWS to recommend sound grazing practices on the Farm Conservation Areas. The timing and location of grazing would be tailored to maximize benefits and minimize impacts to Covered Species. In areas of cheatgrass dominance, grazing may be an effective means of control if cattle are allowed to graze new growth of cheatgrass in early spring before the emergence of native bunchgrasses. In addition to being invasive, cheatgrass is highly flammable. Grazing may be used as a method to control wildfire by reducing the amount of cheatgrass and of standing dead material (USDA 1997).

Apart from these Conservation Commitments, the Farm has prepared a Memorandum of Understanding (MOU) with ODFW to facilitate voluntary actions and management efforts to further biological conservation within undeveloped portions of the Farm's Development Areas. The MOU and the associated voluntary conservation measures are included in **Appendix H**. The conservation measures and provisions of the MOU are voluntary and have no regulatory or enforcement authority at the local, state, or Federal level and are not subject to the terms and conditions of the MSCCAA. Under its terms, the MOU may be effective for as long as the MSCCAA remains in effect for the Farm.

7.1.1.2 To Benefit the Washington Ground Squirrel

1. At the earliest opportunity to meet the ODFW survey protocol, the Farm commits to conduct a survey for Washington ground squirrels prior to ground disturbance on the radar range. The survey will be conducted according to the ODFW protocol and the results will be provided to the ODFW and USFWS. Additional surveys for the ground squirrel or other Covered Species will be funded by USFWS or through other funding sources.

2. The Farm will provide ODFW and USFWS at least 30 days notification prior to a ground squirrel survey within the radar range. The notification period is intended to provide the opportunity for either agency to translocate individuals for conservation or research purposes. The opportunity to research the translocation process and methods used on the radar range will provide valuable information for any future translocation efforts for this species.

7.1.2 Responsibilities

Threemile Canyon Farms will sign the MSCCAA as a corporate entity and on behalf of its subsidiaries and other subtenants within the Covered Area that are operating under subleases amended to include the terms and conservation commitments of the MSCCAA. The associated section 10(a) permits will authorize the incidental take of any listed Covered Species by Threemile Canyon Farms and any of its subsidiaries and the subtenants (including their employees, agents, representatives, consultants, contractors, sub-contractors, and other parties over whom the Permittees have authority and/or control), resulting from Covered Activities. The extent of authorized incidental take, should it occur, shall be consistent with the section 10(a)(1)(A) permits, as long as the permit conditions, including implementation of the MSCCAA are followed.

7.2 THE NATURE CONSERVANCY

7.2.1 Conservation Commitments

TNC will manage the Farm Conservation Areas in accordance with the terms of the ODFW Conservation Easement, TNC's sublease with the Farm, a management plan approved by USFWS, and with available funding to maintain, and improve where feasible, the integrity of the existing native communities and the associated Covered Species. As described previously, TNC will utilize a variety of management options in achieving this goal. These management options may include discing for weed abatement, restoration, or fire control; drilling as a means for revegetation; weed control; fire suppression; prescribed fire; vegetation and wildlife surveys; research; controlling access; grazing; and fence removal, construction, and/or maintenance.

The following are specific conservation measures that TNC will implement through this Agreement. These measures were adapted from those identified by ODFW as having the potential to benefit the Covered Species within the Covered Area.

7.2.1.1 To Benefit All Covered Species

1. All Covered Activities will be conducted with the intent of avoiding or minimizing impacts to the Covered Species and their habitats. The timing, extent, location, and specific methods for each management activity will be evaluated and modified as possible to provide the best, overall long-term collective benefits to the Covered Species.
2. TNC will manage noxious weeds in the Farm Conservation Areas with the intent of limiting their spread to the greatest extent practicable, while minimizing impacts to surrounding native vegetation and wildlife. Current weed distribution and abundance will be mapped, monitored and controlled as funding allows using best management practices. Prevention measures will be developed and implemented to minimize the spread of weeds by vehicles and personnel in consultation with the Farm, PGE, USFWS, and ODFW.
3. In the absence of emergency circumstances, such as responding to wildfire, TNC will notify ODFW and USFWS at least 30 days in advance of when they expect to incidentally take any Covered Species to facilitate translocation.
4. TNC will implement fire control measures throughout the Farm Conservation Areas according to the Wildfire Response Plan (**Appendix I**) in an effort to minimize impacts from suppression and uncontrolled wildfires. TNC will update the Wildfire Response Plan annually and inform the Farm, PGE, the Navy, neighboring landowners, and the Boardman and Ione Fire Departments. As funding allows, TNC will eliminate unnatural fuel loads (non-native vegetation) and other fire hazards to reduce the risk and intensity of fires and expand wildfire response capacity. Fire control measures will benefit most species by protecting large shrub patches, nesting trees, and native grasses, while minimizing the potential for invasion of cheatgrass and other noxious species.
5. For the duration of the grazing lease agreement, TNC will work closely with the Farm, the grazing leaseholder and USFWS to recommend methods of reducing impacts of grazing and livestock management activities on Covered Species and their habitats on the Farm Conservation Areas.
6. Vehicle and equipment access will be planned and implemented to minimize potential impacts to the Covered Species and their habitats on the Farm Conservation Areas.

7.2.1.2 To Benefit the Washington Ground Squirrel

1. TNC will maintain, and improve where feasible, Washington ground squirrel habitat within the Farm Conservation Areas by taking steps to minimize destructive, unauthorized uses and by avoiding destructive soil disturbances from covered activities in active colony areas. The use of discing within Farm Conservation Areas will not occur in areas where damage to active ground squirrel burrows could occur

and drilling will not occur in locations where it may negatively impact squirrel habitat.

2. TNC will not allow mammal control or recreational shooting on the Farm Conservation Area when ground squirrels are active above ground (January 1 to July 15).

3. TNC will allow Washington ground squirrel translocation efforts to occur on the Farm Conservation Areas, where appropriate. USFWS and/or ODFW will conduct translocation efforts.

7.2.1.3 To Benefit the Ferruginous Hawk

1. TNC will protect large-structure juniper trees on the Farm Conservation Areas by evaluating and where necessary reducing unnaturally high fuel loads.

2. TNC will not allow mammal control or recreational shooting in a 0.6-mile radius of known active ferruginous hawk nests during the nesting season (March 1 to July 15) on the Farm Conservation Areas.

3. TNC will maintain a buffer zone of 0.6 miles around known active ferruginous hawk nest sites on the Farm Conservation Areas where human use will be limited to essential travel during the nesting season (March 1 to July 15). Essential travel is defined as necessary activities associated with weed control, fire protection/suppression, monitoring or assessment work, and protection from trespass uses.

4. TNC will manage, where feasible and as funding allows, for native perennial grasses and shrubs around nesting sites to promote healthy prey populations (mostly small mammals and rabbits) on the Farm Conservation Areas.

7.2.1.4 To Benefit the Loggerhead Shrike

TNC will maintain, and improve where feasible and as funding allows, areas on the Farm Conservation Areas with large structure sagebrush and bitterbrush, especially at all sites with juniper, sagebrush and a bare soil understory through weed control and wildfire suppression efforts.

7.2.1.5 To Benefit the Sage Sparrow

TNC will maintain, and improve where feasible and as funding allows, areas on the Farm Conservation Areas of sage that have a healthy native understory with bare ground or cryptogamic crust through weed control and wildfire suppression efforts.

7.2.2 Responsibilities

TNC will participate in the MSCCAA as a managing entity and potential third-party transferee of the Farm Conservation Areas. TNC will be a Permittee to the associated

section 10(a) permits for ESA coverage associated with its activities within the Farm Conservation Areas. The section 10(a) permits will authorize the incidental take of any listed Covered Species by TNC, and any employees, representatives, or agents thereof, resulting from Covered Activities. The extent of authorized incidental take shall be as specified and shall be the result of the otherwise lawful types of activities described as Covered Activities within this Agreement.

7.3 PORTLAND GENERAL ELECTRIC (BOARDMAN PLANT)

7.3.1 Conservation Commitments

The following are conservation measures that PGE will implement under this Agreement. These measures were derived from measures identified with ODFW and are expected to benefit the Covered Species within the Covered Area. While committing to these conservation measures, PGE will continue to develop its Boardman Plant property as described within the Covered Activities section.

7.3.1.1 To Benefit All Covered Species

1. PGE has designated an 880-acre PGE Conservation Area within its Boardman Plant property boundaries. This area is illustrated in **Figure 2**. As a Signatory to this Agreement, PGE is committed to protecting and maintaining Covered Species' habitat within the Conservation Area, consistent with the tenets of this Agreement, and for the duration of the Agreement. Operational activities included as Covered Activities for the purposes of this Agreement that may occur within this area include the following:

    - limited vehicle traffic and road maintenance as necessary
    - periodic livestock grazing
    - fire management activities
    - weed control
    - fence maintenance
    - deposition of fugitive coal dust from the coal yard
    - all environmental and biological monitoring associated with PGE's Site Certificate requirements, monitoring as required by this Agreement, and any new monitoring deemed appropriate for the area

    The PGE Conservation Area is adjacent to the Farm Conservation Area managed by TNC and substantially increases the amount of area managed as native habitat for all of the Covered Species. The Conservation Area has a long history of previous livestock grazing; however, PGE has taken great care to manage livestock grazing in an environmentally sensitive manner since taking ownership of the land. When grazing is permitted, PGE Environmental Services staff will coordinate with USFWS and use professional judgment to determine the actual length of the grazing period and number of livestock permitted, within the standards described above. Much of

the Conservation Area is dominated by relatively healthy stands of native grasses, including western needle-and-threadgrass, Sandbergs bluegrass, and bluebunch wheatgrass. Antelope bitterbrush, big sagebrush, and gray rabbitbrush occur as scattered populations throughout the area; cheatgrass is also present. Designation of this area for conservation purposes protects Washington ground squirrels that have been observed in the area. PGE will actively manage the Conservation Area to maintain and protect its status as native grassland, but will also promote the establishment, growth, and expansion of bitterbrush and sagebrush in areas where these shrub species would naturally occur. A portion of the Conservation Area is downwind of the Plant's coal yard; however, most of the fugitive coal dust deposition occurs within approximately 2,500 feet of the coal yard, with very little reaching the designated Conservation Area. Researchers monitoring the effects of coal dust on vascular plants, mosses, and lichens at Boardman within the actual deposition zone mentioned above have detected very little impact on the frequency, cover, and growth characteristics of vascular plants. Coal dust has had a perceptible impact on lichens, however, by decreasing the frequency of occurrence of lichen species (Tinnen and Spencer, 1996).

2. In the absence of emergency circumstances, such as responding to wildfire, PGE will notify ODFW and USFWS at least 30 days in advance of when they expect to incidentally take any Covered Species to facilitate translocation.

3. PGE will implement an expanded weed management program to control the establishment and spread of noxious weeds throughout its Boardman Plant property, with an emphasis on the Conservation Area. Weed control in the past has focused entirely on controlling the spread of yellow starthistle. This program will be broadened to include an integrated approach to pest management. The new program will address more than one weed species, employ a range of control measures, and promote preventative practices.

4. PGE will implement measures to protect habitats on the Conservation Area from damaging range fires. These measures will be identified by a Boardman Plant Wildland Fire Response Plan (**Appendix J**). Fire control measures will benefit most species by protecting large shrub patches, nesting trees, and native grasses, while minimizing the potential for invasion of cheatgrass and other noxious plant species.

5. Portions of the designated by-product disposal area south of Carty Reservoir will be developed incrementally and only as needed, rather than all at once. Landfill sites will be kept to approximately 40 acres in size. Once a landfill has reached its full capacity, it will be decommissioned. This will involve covering the site with at least 24 inches of soil and planting vegetation. When it becomes necessary to decommission a landfill, PGE will meet with the USFWS, ODFW, and TNC to develop a revegetation plan. If PGE eventually develops the by-product disposal area east of the coal yard, a 250-foot buffer will be maintained between the disposal area and the designated PGE Conservation Area.

6. PGE will develop a management plan for the PGE Conservation Area within the first six months of the Agreement. The management plan will identify the various management

actions PGE will implement on the Conservation Area to fulfill the tenets of this Agreement. The plan will emphasize adaptive management and provide enough flexibility to accommodate changing conditions or unforeseen circumstances.

7.3.1.2 To Benefit the Washington Ground Squirrel

1. PGE will implement land management practices identified in the management plan(as described above), approved by the USFWS, and aimed at protecting and maintaining suitable habitat within the PGE Conservation Area on its Boardman Plant property. Suitable habitat for the Washington ground squirrel is described in Section 5.2.1 and illustrated in Figure 4.
2. As described in subsection 7.3.1.1 above, PGE will develop the designated by-product disposal area south of Carty Reservoir incrementally, rather than all at once.
3. Landfills that reach full capacity and are no longer useable as by-product disposal sites will be decommissioned, covered with soil, and revegetated as described in subsection 7.3.1.1 above.

7.3.1.3 To Benefit the Ferruginous Hawk

1. PGE will protect large-structure juniper trees in and around shrub-steppe and grassland habitats in the PGE Conservation Area, and on Boardman Plant property south of Carty Reservoir not intended for by-product disposal.
2. While allowing for mammal control within the Plant vicinity and along hydraulic structures, PGE will not allow mammal control, recreational shooting or hunting within a 0.6-mile radius of known active ferruginous hawk nests during the nesting season (March 1 to July 15).
3. While allowing for existing facilities and operations PGE will maintain an undeveloped buffer zone of a 0.6-mile radius around known active ferruginous hawk nest sites where potentially injurious human disturbances are prohibited during nesting season (March 1 to July 15). The term “existing facilities and operations” is intended to include normal activities associated with ongoing operation and maintenance of the Power Plant, unexpected and/or emergency repair and/or operational measures necessary to prevent or remedy power outages related to the Plant’s generation or transmission facilities, and to maintain safety.
4. As described in subsection 7.3.1.1 above, PGE will develop the designated by-product disposal area south of Carty Reservoir incrementally, rather than all at once. Landfills that reach full capacity and are no longer useable as by-product disposal sites will be decommissioned, covered with soil, and revegetated.
5. PGE will protect and maintain native perennial grasses and shrubs in the PGE Conservation Area to promote healthy prey populations.

7.3.1.4 To Benefit the Loggerhead Shrike

1. In the PGE Conservation Area, and on Boardman Plant property south of Carty Reservoir not intended for by-product disposal, PGE will protect areas with large structure sagebrush and bitterbrush, especially at all sites with juniper and an understory of sagebrush and bare soil.
2. As described in subsection 7.3.1.1 above, PGE will develop the designated by-product disposal area south of Carty Reservoir incrementally, rather than all at once. Landfills that reach full capacity and are no longer useable as by-product disposal sites will be decommissioned, covered with soil, and revegetated.

7.3.1.5 To Benefit the Sage Sparrow

Based upon the results of the 2001 vegetation mapping, there is currently no known sage sparrow habitat on the PGE Boardman Plant property; however, PGE will protect sagebrush habitats in the PGE Conservation Area and in other areas of the Boardman Plant property not intended for development.

7.3.2 Responsibilities

PGE will sign this Agreement as a corporate entity. The associated section 10(a) permits will authorize the incidental take of any listed Covered Species by PGE, and any employees, representatives, or agents thereof, resulting from Covered Activities for the term of the permit. The extent of authorized incidental take shall be as specified and shall be the result of the otherwise lawful types of activities described as the Covered Activities within this Agreement.

7.4 OREGON DEPARTMENT OF FISH AND WILDLIFE (COVERED AREA)

ODFW will assume certain responsibilities in the implementation of this Agreement. These may include any or all of the following.

1. Conducting surveys for the Covered Species and otherwise monitoring the distribution and status of the Covered Species within the Conservation Areas of the Farm and PGE.
2. Managing the timing, number, and methods of any hunting to be allowed on the conservation areas to minimize take and/or the harassment of the Covered Species and their habitat
3. Coordinating controlled hunts.
4. Assisting with annual reports as may be necessary.

ODFW will also help to ensure that this Agreement is consistent with current applicable State laws and regulations governing management of non-listed species.

ODFW shall be a Permittee under the section 10(a)(1)(A) permits to insure ESA coverage for activities undertaken in accordance with its responsibilities under this Agreement.

7.5 U.S. FISH AND WILDLIFE SERVICE (COVERED AREA)

USFWS is the lead Federal agency responsible for ESA compliance and the Candidate Conservation Agreement program. Upon approval and execution of this Agreement, USFWS will issue to Threemile Canyon Farms, TNC, PGE, and ODFW, ESA section 10(a)(1)(A) permits for the Covered Species consistent with this MSCCAA. The permits shall be issued in accordance with the regulatory assurances currently provided to the Permittees under 50 CFR 17.22(d)(5) (for endangered species) and 50 CFR 17.32(d)(5) (for threatened species) (collectively, the "Assurances Regulations"). Consistent with the USFWS Candidate Conservation Agreement with Assurances Final Policy (USFWS and NMFS 1999), the Assurances Regulations and Section 10 of the MSCCAA, the USFWS will not require additional conservation or mitigation measures, or the commitment of additional land, water, or compensation or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon for the Covered Species should the Washington ground squirrel or any of the other Covered Species become listed under the ESA in the future. In the event of unforeseen circumstances, the USFWS will not require the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources outside the Conservation Areas beyond the level otherwise agreed upon for the Covered Species for any additional conservation or mitigation measures deemed necessary without first satisfying its primary conservation obligations under the Assurances Regulations. If additional conservation or mitigation commitments are subsequently deemed necessary, the USFWS may not require such measures without obtaining the consent of the applicable Permittee (i.e., Threemile Canyon Farms, TNC, PGE, or ODFW). The permits will authorize the incidental take of the Washington ground squirrel and the other Covered Species as long as such take is consistent with this Agreement and the associated permits.

7.6 ALL PARTIES TO THE AGREEMENT

7.6.1 Modifications and Amendments

Threemile Canyon Farms, TNC, PGE, ODFW, and USFWS may propose modifications to this Agreement by providing written notice to USFWS and to the other Signatories. Such notice shall include a statement of the proposed modification and the reason for the modification. Threemile Canyon Farms, TNC, PGE, ODFW and other Signatories may propose modifications to this Agreement by providing written notice to USFWS and to the other Signatories. Such notice shall include a statement of the proposed modification and the reason for the modification. The modification will become effective upon written approval by the USFWS and the party proposing the modification (unless the proposing

party is USFWS) provided that no such modification will alter, change, modify, or otherwise affect any other Signatory's commitments and assurances under the MSCCAA unless also approved in writing by that Signatory.

The permits may be amended in accordance with all applicable legal requirements, including, but not limited to, the ESA, NEPA, and USFWS permit regulations in effect at the time of the amendment. The party proposing the amendment shall provide a statement of the proposed amendment and the reasons for the amendment.

7.6.2 Revocation, Suspension, Termination, and Relinquishment

USFWS may suspend or revoke the permits for cause in accordance with the laws and regulations in force at the time of such suspension or revocation.

This MSCCAA is a voluntary conservation agreement that is fully binding upon the Signatories while in effect. Any of the Signatories, however, may terminate their participation in the MSCCAA, prior to its expiration date, for good cause, and relinquish their accompanying permit in part or in whole, in accordance with USFWS regulations, currently codified at 50 CFR § 13.26, in force as of the date of such relinquishment. Upon termination, the Signatory shall have no further obligation hereunder, or under the ESA, for any take, or effects of take, that occurred during the implementation of the MSCCAA. The revocation, suspension, termination, or relinquishment of any Signatory's permit, however, shall not affect any other Signatory's permit, nor the continuing incidental take authorization under the agreed-upon terms of the permit and this Agreement.

7.6.3 Remedies and Dispute Resolution

Each Signatory shall have all remedies otherwise available to protect its interests, except that no party shall be liable for any breach of this Agreement, any performance or failure to perform an obligation under this Agreement, or any other cause of action arising from this Agreement.

The Signatories to this Agreement agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon within a reasonable time, not to exceed 60 days from receipt of notice requesting utilization of this provision.

7.6.4 No Third-Party Beneficiaries

This Agreement does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this Agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the parties to this Agreement, with respect to third parties, shall remain as imposed under existing law.

7.6.5 Future Federal Actions within the Covered Area

In any section 7 consultation or section 10(a) permit application involving any of the Signatories that may be required or processed pursuant to the ESA subsequent to the effective date of the MSCCAA and accompanying permits, the USFWS shall consider the conservation benefits of the MSCCAA and utilize the data and methodology of the ESA section 7 biological documentation issued with regard to the approval of the MSCCAA.

7.6.6 References to Regulations and Governing Law

Except where expressly provided otherwise in this MSCCAA, any reference in this MSCCAA or the permits to any regulation or rule the USFWS shall deem such reference to a regulation or rule as a reference in existence at the time the action is taken.

The terms of this Agreement shall be governed by and construed in accordance with applicable Federal law. Nothing in this Agreement is intended to limit the authority of USFWS to fulfill its responsibilities under applicable Federal laws. All activities undertaken pursuant to this Agreement or the permits must be otherwise lawful and in compliance with all applicable state and Federal laws and regulations.

7.6.7 Successors and Assigns

The section 10 permits accompanying this Agreement shall be binding on, and shall inure to, the benefit of the Permittees and their respective successors and transferees, in accordance with applicable regulations (currently codified at 50 CFR 13.24 and 13.25) for the duration of the permit.

7.6.8 Severability

If any provision of this MSCCAA is held to be invalid or otherwise unenforceable, all other provisions may remain in effect, to the extent that they can be reasonably applied in the absence of the invalid or unenforceable provision, and continue to generally accomplish the purposes of the MSCCAA.

7.6.9 No Agency or Partnership Relationship

Neither this MSCCAA nor the permits shall make or be deemed to make any Signatory to this MSCCAA the agent for or the partner of the other.

7.6.10 Notification of Take Requirement

In the absence of emergency circumstances, such as responding to wildfire, each of the Permittees are required to notify USFWS at least 30 days in advance, but preferably as far in advance as possible, of when he or she expects to incidentally take any species covered under the ESA section 10 permit. Such notification will provide USFWS an opportunity to translocate affected individuals of the species, if possible and appropriate.

8 ANTICIPATED CONSERVATION BENEFITS

As identified in the USFWS Candidate Conservation Agreement with Assurances Final Policy (USFWS and NMFS 1999), USFWS must determine that the conservation measures and the expected benefits of this Agreement, when combined with those benefits that would be achieved if it is assumed that similar conservation measures were also implemented on other necessary properties, would preclude or remove the need to list the Covered Species.

The primary conservation benefit of this Agreement is the dedication of large tracts of shrub-steppe and grassland habitats for conservation purposes that would otherwise continue to decline as viable habitats for the target species. The Conservation Areas managed by TNC and PGE provide the largest contiguous block of protected Washington ground squirrel habitat in Oregon and provide vital habitat to a variety of other wildlife species, including the ferruginous hawk, loggerhead shrike, sage sparrow, and other native species. These Conservation Areas also provide a critical link among other, adjacent areas that are currently managed, or could be managed, for conservation purposes, thereby greatly increasing the ability of each to sustain native wildlife and plant communities.

The management of the Conservation Areas by TNC and PGE will effectively maintain, and improve where feasible and funding allows, the imperiled native plant communities upon which the Covered Species survive. The Conservation Areas, if not properly managed, would continue to decline in habitat value because of non-native species inundation and wildfires and/or potentially harmful wildfire suppression activities. A management plan, currently being developed by TNC, will identify where and how these imperiled native plant communities within the Farm Conservation Areas will be managed. The goals of the management plan are to protect existing conditions for all native-dominated plant community occurrences, improve the condition of lower condition status native-dominated communities, and restore areas that are currently dominated by non-native species. Areas currently dominated by native plants and in the highest condition will be the top priority for protection from any negative impacts by fire, fire suppression activities, grazing and weed invasions. Native-dominated communities, identified as being in lower condition status, may be improved through weed control, active seeding or planting. Active restoration will occur in areas that are currently dominated by non-native species. These activities will be identified in the management plan and will occur as funding is available.

Conservation benefits to the Covered Species from implementation of this Agreement are expected in the form of maintenance and improvement of the native shrub-steppe and grassland habitats, intended to contribute to an increase and reestablishment of the Covered Species populations in Morrow County. In addition, conservation of the Covered Species would be improved by encouraging cooperative habitat management efforts among USFWS, ODFW, Threemile Canyon Farms, TNC, and PGE.

Under this Agreement, habitat for the Covered Species will be maintained, and improved where feasible, within the Covered Area by Threemile Canyon Farms, TNC and PGE through their Conservation Commitments and voluntary conservation measures. This Agreement provides regulatory assurances to the Permittees in exchange for entering into this Agreement and undertaking conservation measures designed to maintain, and likely improve over time, habitat for the Covered Species on their property. The success of these efforts will be determined through the monitoring process (see Section 13, Monitoring and Reporting). Without the regulatory assurances provided by this Agreement and associated section 10(a)(1)(A) permits, landowners may be unwilling to protect sensitive species or improve their native habitats, due to the potential for future land use restrictions should the species be listed under the Federal ESA.

In summary, the benefits to the Covered Species from conservation measures committed to under this Agreement are expected to occur from the maintenance and improvement of the native habitats within the Conservation Areas and the Conservation Commitments of the Permittees in the management of the Covered Area. The combination of these conservation measures is expected to result in improvements to the native habitats within the Covered Area, and likely an increase in the Covered Species populations. These conservation measures will also benefit a myriad of plant and animal species that depend on the same native habitats for their survival.

9 POTENTIAL IMPACTS OF COVERED ACTIVITIES

The USFWS will issue an enhancement of survival permits under section 10(a)(1)(A) to the Permittees following the authorization of this Agreement. The enhancement of survival permits authorize incidental take associated with the Covered Activities described within this Agreement. This section describes the potential impacts to the Covered Species from the Covered Activities. In the following section, the term "direct impact" is used to acknowledge the potential for impact to *individuals* of the species. An "indirect impact" is used to acknowledge the potential for impact to *suitable habitat* for a Covered Species. The intent of this section is not to estimate take. USFWS will use the information in this section to estimate the level or extent of incidental take associated with each Covered Activity.

9.1 WASHINGTON GROUND SQUIRREL

9.1.1 Threemile Canyon Farms

The Farm and its subsidiaries or subtenants may develop some or all of the undeveloped portions of the Farm Development Area (Future Agricultural Areas, Radar Range, and Undeveloped Portions) as described in Section 6.1.1. The greatest potential impact to the Washington ground squirrel will result from the planned conversion of the 1,570-acre Future Agricultural Area within the southwest portion of the Farm (**Figure 2**). This area consists primarily of the Warden soil type, which is known to be used by the ground squirrel. Despite the 1999 ODFW survey of this area in which no ground squirrels were observed (Morgan and Nugent 1999, **Appendix F**), the habitat conditions suggest that this area provides suitable habitat to the ground squirrel; therefore, conversion of this area may directly impact individuals, in addition to the 1,570 acres of suitable habitat. The Future Agricultural Area in the northeast was surveyed in 2000 (see **Appendix F**) and there were no ground squirrel observations. Due to the lack of suitable soils, the conversion of this area to agriculture is not anticipated to directly or indirectly impact squirrels.

There is also a potential for direct and/or indirect impacts to the ground squirrel from the potential conversion of the radar range area along the east edge of the Farm (**Figure 2**). This area, which is within the Covered Area, is still leased by Boeing for military research activities and access is prohibited. While the radar range is not Warden or Sagehill soils, there have been sightings of ground squirrels directly across the property boundary on the Naval Facility (Quade 1994, Morgan 2001) and on the South Farm Conservation Area. Portions of the radar range were scraped of vegetation several decades ago; however, vegetation has returned and it is not known whether there has been additional ground disturbance. It may be assumed that ground squirrels do occur on the radar range area, based upon the anticipated soil types, and that these individuals and their habitat will be impacted with the development of the radar range area. The Farm has made a Conservation Commitment to minimize direct impacts to squirrels in this area by

requiring notification to the ODFW and USFWS prior to incidental take, with the intent of translocating squirrels from the area to be impacted (see Section 7). It should be assumed that any Washington ground squirrel habitat on the Farm Development Area will be removed from the yet to be developed portions of the Farm as a result of the Farm's Covered Activities.

The Farm may also impact Washington ground squirrels within the Farm Conservation Areas as it has first response responsibility for all range fires according to the Wildfire Response Plan (**Appendix I**). While fire control and suppression will emphasize plant and wildlife maintenance and improvement where feasible and ground disturbance will be limited to the greatest extent practicable, there may be impacts to ground squirrels and their habitat as a result of the essential fire control and suppression activities, such as equipment access and discing.

Grazing, hunting, and recreational access in the undeveloped portions of the Farm are not anticipated to impact ground squirrels or their habitat as there is no suitable habitat (see discussion of Washington ground squirrel, Section 5.2.1) within these areas beyond the Future Agricultural Areas and the radar range (**Figure 2**). There are no anticipated impacts to the ground squirrel from the Farm's additional Covered Activities.

Grazing on the Farm Conservation Areas is considered an ongoing Farm activity and will occur only over the Farm Conservation Areas until 2005, without the opportunity to extend the lease. Following adoption of the MSCCAA, grazing will consist of approximately 1100 head and will not occur between May 15 and November 1. Grazing may impact the ground squirrel through direct trampling of burrows or through habitat degradation and subsequent premature dormancy.

9.1.2 The Nature Conservancy

The intent of the TNC Covered Activities is to maintain, and improve where feasible and funding allows, native vegetation conditions and wildlife habitat on the Farm Conservation Areas. TNC is preparing a management plan, to be approved by USFWS, that will guide their activities on the Farm Conservation Areas. All ground disturbing activities on the Farm Conservation Areas will be conducted with the intent of avoiding any direct or indirect impact to ground squirrels or their habitat; however, some activities, such as those associated with fire suppression, may result in direct and/or indirect impact to individuals or their habitat. If the Farm, ODFW, USFWS and TNC mutually elect to allow hunting on the Farm Conservation Areas, it is not anticipated to impact ground squirrels or their habitat as hunting will not be allowed during the ground squirrels' active period. In addition, hunter education will be used to provide an understanding of conservation practices.

TNC will be conducting biological monitoring within suitable habitat for the ground squirrel; however, impacts associated with this monitoring are anticipated to be

insignificant. Over the long term, it is anticipated that the status of the Washington ground squirrel will improve through the Conservation Commitments on the Farm Conservation Areas.

9.1.3 Portland General Electric

PGE surveyed most of its Boardman Plant property for Washington ground squirrels in 1999 and 2001. There were no sightings in 1999, but one individual was observed in the PGE Conservation Area during the 2001 survey. Another individual was observed within the PGE Conservation Area outside of a survey period (Nelson 2001). There are Sagehill soils over a portion of the PGE Conservation Area and the area south of Carty Reservoir. Suitable habitat appears to exist within portions of these areas.

Most of the PGE Covered Activities do not include ground disturbance within areas of suitable habitat. Power generation, transmission, coal storage and handling, fence maintenance, vehicle access, and the operation of Carty Reservoir are not anticipated to further impact suitable habitat for the ground squirrel. PGE's methods for conducting its currently required environmental monitoring are not anticipated to result in any measurable impacts to the ground squirrel.

Though air emissions from operation of the existing power plant is not a Covered Activity under this Agreement, it appears to have little or no effect on steppe and shrub-steppe habitats inhabited by the Washington ground squirrel. PGE has used remote sensing techniques based on color infra-red aerial photographs to monitor the potential effect of the plant's stack emissions (SO_x, NO_x, ozone, and particulates) on cultivated and natural shrub-steppe vegetation in the surrounding vicinity. To date, no vegetation has been shown to be under stress from the power plant's air emission plume (PGE 2001). PGE has also monitored trace elements emitted during operation of the plant in nearby soils and vegetation. Sampling data to date have shown no clear trends in soil or vegetation chemical concentrations, either over time or among the sampling sites (PGE 2001), that would suggest that plant emissions are affecting the surrounding soils and vegetation. Because the plant stack emissions have not been shown to adversely affect surrounding habitats, it is also unlikely that the emissions have affected the Washington ground squirrel.

Coal dust from the coal yard becomes windborne during handling and high winds and is carried to the east by the prevailing winds. Most of the fugitive coal dust settles to the ground within 2,500 feet of the coal yard (PGE 2001). The longest distance estimated for coal dust dispersal is about 3,500 feet, but in a majority of years never exceeds 2,500 feet. A portion (~100 acres) of the PGE Conservation Area is located between 2,700 and 3,500 feet east of the coal yard, and from time to time, receives small amounts of airborne coal dust (Figure 4). The ecological effects of the coal dust plume on vegetation growing within 2,500 feet downwind of the coal yard were studied during the 1993-1995 growing seasons. Researchers found only subtle differences in vegetation response to coal dust

accumulation on the soil (Tinnin and Spencer 1996). There were only minor differences noted in the frequency, cover, and growth characteristics of vascular plants. Coal dust was found to have a perceptible effect on lichens, however, by decreasing the frequency of occurrence of lichen species. Within the PGE Conservation Area, a majority of suitable habitat (Sagehill soils) for the Washington ground squirrel occurs beyond 3,500 feet from the coal yard (Figure 4). Therefore, the deposition of fugitive coal dust is not expected to adversely impact the ground squirrel or its habitat within the Conservation Area. Suitable habitat in the fugitive coal dust deposition zone that occurs within 2,500 feet of the coal yard may be affected to the same extent noted for vegetation above, but this is not expected to adversely affect the ground squirrel.

Operation of the current 40-acre ash disposal area, or landfill, south of Carty Reservoir does not appear to adversely affect the Washington ground squirrel or other Covered Species. Ash is contained within the landfill, fugitive dust and leakage are controlled by watering fresh ash daily. Sampling and analysis of monitoring wells around the landfill as part of the Boardman Plant Groundwater Monitoring Program have confirmed no impact to groundwater from leaching (PGE 2002b).

The need for additional by-product storage may impact the ground squirrel over time by changing the condition of approximately 220 acres of suitable habitat on PGE Boardman Plant property south of Carty Reservoir. Of the 220 acres required for additional by-product storage, approximately 152 acres are characterized by Sagehill soils. Approximately 40 acres of the total area will be developed and in use at any one time as a by-product disposal site or landfill. New landfills of a similar size will be developed incrementally over time as needed. When an existing landfill becomes full, it will be decommissioned, covered with at least 24 inches of soil, and revegetated. It is possible that only one additional landfill will be needed during the term of this Agreement. In addition to the by-product disposal area south of Carty Reservoir, approximately 350 acres of undeveloped land east of the coal yard has been designated as a future by-product disposal area. This area currently serves as a deposition zone for fugitive coal dust and may include about 180 acres of suitable habitat. In the event that "scrubbers" become necessary to remove sulfur dioxide (SO_2) from boiler exhaust gas, a portion of the by-product disposal area east of the coal yard may need to be developed. The disposal area would be developed incrementally, similar to the disposal area south of Carty Reservoir. The by-product of the scrubber process will mostly be a calcium sulfate product known as gypsum., which may be sold for off-site use as a product for manufacturing wallboard, or be solidified and deposited on site in a landfill. The landfill will be constructed to prevent leakage of gypsum residues into the soil or surrounding areas. Apart from the conversion of suitable habitat to a landfill, the disposal of "scrubber" by-product isn't expected to adversely affect the Washington ground squirrel.

Fire suppression may impact the ground squirrel by the potential need to create fire breaks by clearing or grading in areas of suitable habitat. Firebreaks, or "cat lines,"

installed to control wildfires will be re-seeded to prevent the establishment and spread of invasive or exotic plants at the site. Although PGE intends to manage livestock grazing so that it does not harm wildlife or native plant communities, it could potentially impact the ground squirrel by trampling burrows. Grazing may reduce fuel loading that contributes to high intensity wildfires, while also stimulating healthy plant growth by periodically removing dead plant material. Fence maintenance is typically associated with livestock grazing and usually involves driving a pickup truck or off-highway vehicle along fence lines to search for areas in need of repair. Vehicles will not be driven across known Washington ground squirrel sites, colonies, or burrows while conducting fence maintenance. Fence maintenance is not expected to adversely affect the ground squirrel. There should be no take associated with hunting as hunting seasons are primarily outside of the ground squirrel's active period.

It is anticipated that the dedication, maintenance and improvement of the PGE Conservation Area will result in a long-term beneficial impact to the ground squirrel population. PGE will develop a management plan for their Conservation Area that will emphasize conservation strategies and adaptive management. Suitable habitat in the Conservation Area currently appears under-populated by the ground squirrel. Protecting this habitat offers the ground squirrel additional habitat in which to expand. Long-term weed control and fire suppression will also protect and/or improve the condition of desired plant communities within suitable habitat in the Conservation Area.

9.1.4 Oregon Department of Fish and Wildlife

Research on the Covered Species may benefit the species by guiding adaptive management and conservation practices. ODFW may impact the Washington ground squirrel through research and biological monitoring over the Covered Area. ODFW may conduct ground squirrel surveys during the squirrel's active period and may, eventually, wish to collect (take) a limited number of individuals for scientific purposes under a separate section 10(a) research permit (if needed). However, the small number that may be collected would have no measurable impact on the overall population.

9.2 FERRUGINOUS HAWK

9.2.1 Threemile Canyon Farms

The most-direct impact to the ferruginous hawk will result from planned conversion of the south future agricultural area, an area of 1,570 acres in the southwest portion of the Farm (**Figure 2**). This area currently contains approximately four nest trees (see Section 5.2.2.4 and **Figure 5**) which will be removed when the area is converted to agriculture. One of these nests is considered active while the other three are non-active (in 2001). Following conversion of the southwest future agricultural area, two nest trees will remain in the Development Area of the Farm. Studies on the adjacent Naval Facility discovered an average of 1.6 miles between ferruginous hawk nests (Holmes and Geupel 1998). The

greatest distance between these potential nest trees on the future agricultural area is approximately two miles; therefore, removal of these four potential nest trees may result in an impact to a maximum of two potential nesting territories. Conversion of this area to agriculture will also result in the loss of 1,570 acres of ferruginous hawk foraging habitat. Based upon the proximity of the two remaining nest trees to existing agriculture, it is doubtful they will be indirectly impacted by the development of the new agricultural areas.

For the purposes of this Agreement, it should be assumed that, in addition to the impacts noted above, all ferruginous hawk nesting, foraging and roosting habitat will be removed from the yet to be developed portions of the Farm as a result of the Farm's Covered Activities. There are at least two nest trees within the undeveloped portions of the farm outside of the Future Agricultural Area (**Figure 5**), but additional potential nest trees may occur further north within the Willow Creek Canyon area. Assuming maximum saturation of this area, there is potential for an additional three nesting territories outside the future agricultural area. Development within the Willow Creek Canyon area could, therefore, result in impacts to a maximum of five potential ferruginous hawk nesting territories on the Farm over the life of the Agreement. Outside the Willow Creek Canyon area, there is no known ferruginous hawk habitat within the undeveloped portions of the Farm.

Grazing on the Farm Conservation Areas is considered a Farm activity and will occur only on the Farm Conservation Areas until 2005, without the opportunity to extend the lease. Grazing during this period may impact the ferruginous hawk through the degradation of foraging habitat and nest trees, and the short-term disturbance associated with the turn-out and round-up of the cattle.

There is the potential for existing farm activities to disturb ferruginous hawks within the Covered Area. This disturbance may occur by limiting the use of adjacent suitable habitat, or it may occur through direct disturbance to individuals should ferruginous hawks enter an active agricultural area.

9.2.2 The Nature Conservancy

The intent of the TNC Covered Activities is to maintain, and improve where feasible and as funding allows, native vegetation conditions and wildlife habitat on the Farm Conservation Areas. All activities will be conducted with the intent of avoiding any direct or indirect impact to ferruginous hawks or their habitat; however, some activities, such as those associated with fire suppression and biological monitoring, may result in insignificant direct and/or indirect impact to individuals or their habitat. If the Farm, ODFW, USFWS and TNC mutually elect to allow hunting on the Farm Conservation Areas, it is not anticipated to impact the ferruginous hawk or its habitat as hunting will not be allowed during the primary breeding season. Over the long term, it is anticipated

that the status of the ferruginous hawk will improve through the Conservation Commitments on the Farm Conservation Areas.

9.2.3 Portland General Electric

There have been no ferruginous hawk nests located on the PGE Boardman Plant property; however, there are potential ferruginous hawk nesting and foraging areas within the Boardman Plant property south of Carty Reservoir. PGE will eventually need to develop a portion of this area for by-product disposal. This will occur incrementally over time and could eventually result in the removal of scattered juniper trees found over approximately 220 acres. This is unlikely to occur, however, over the entire 220 acres during the term of this Agreement. Foraging habitat will be temporarily affected during the time when a new disposal site, or landfill, is created and a decommissioned site becomes revegetated and populated by prey species.

Fire suppression and grazing have the potential to impact ferruginous hawk foraging areas, while human activities associated with grazing, environmental monitoring and recreation have the potential to disturb ferruginous hawks during the nesting season. To mitigate potential impacts to the hawk and allow for existing facilities and operations, PGE has committed to maintain an undeveloped buffer zone of a 0.6-mile radius around known ferruginous hawk nests where potentially harmful human disturbances, such as hunting, are prohibited during the nesting season (March 1 to July 15).

It is anticipated that maintenance and improvement of the PGE Conservation Area and the Farm Conservation Areas, in addition to the Conservation Commitments of all parties to this Agreement, will result in a long-term beneficial impact to the ferruginous hawk population.

9.2.4 Oregon Department of Fish and Wildlife

Research on the Covered Species may benefit the species by guiding adaptive management and conservation practices. ODFW may impact the ferruginous hawk through research and biological monitoring over the Covered Area. ODFW may conduct ground surveys during the hawk nesting period and may, eventually, wish to collect a limited number of individuals for scientific purposes. However, the small number that may be collected would have no measurable impact on the overall population.

9.3 LOGGERHEAD SHRIKE

9.3.1 Threemile Canyon Farms

Loggerhead shrike habitat occurs along the western edge of the Farm, along Willow Creek Canyon. According to population estimates summarized in Section 5.2.3.4, there are approximately 19 potential loggerhead shrike territories within the Farm. It should be anticipated that the Farm's Covered Activities will result in direct and indirect impacts to

these potential territories within the Farm's development areas. Grazing in the Conservation Areas may disturb shrike nesting and foraging habitat. For the purposes of this Agreement, it should be assumed that, in addition to the impacts noted above, all loggerhead shrike nesting, foraging and roosting habitat will be removed from the yet to be developed portions of the Farm as a result of the Farm's Covered Activities.

9.3.2 The Nature Conservancy

Loggerhead shrike habitat occurs throughout the South Farm Conservation Area. According to population estimates, there are approximately 34 territories over the low and medium quality habitats within this area. All activities over the South Farm Conservation Area will be conducted with the intent of avoiding any direct or indirect impact to loggerhead shrikes or their habitat; however, some of the Covered Activities may impact this species.

Fire suppression activities, including discing and equipment access, may result in disturbance of shrike nesting and foraging habitats. Fence removal and maintenance may impact roosting habitats. Biological monitoring may temporarily impact shrikes but are not anticipated to result in any long-term impacts. Vegetation improvement activities, such as drilling, weed management and prescription burning, will be planned to avoid any impacts to shrikes or their habitats. If the Farm, ODFW, USFWS and TNC mutually elect to allow hunting on the Farm Conservation Areas, it is not anticipated to impact the loggerhead shrike or its habitat as hunting will not be allowed during the primary breeding season. Over the long term, it is anticipated that the status of the loggerhead shrike will improve through the Covered Activities and Conservation Commitments on the Farm Conservation Area.

9.3.3 Portland General Electric

There are approximately 517 acres of shrike habitat within the PGE Boardman Plant property. Approximately 219 acres of habitat and one territory are located in and adjacent to the PGE Conservation Area and approximately 298 acres and two territories occur in the area south of Carty Reservoir.

It is anticipated that shrike habitat within and adjacent to the PGE Conservation Area may be impacted by occasional grazing, fence maintenance, fire suppression, environmental monitoring and recreation. Impacts associated with these Covered Activities will be temporary and their effects short term.

Operation of the current 40-acre ash disposal area, or landfill, south of Carty Reservoir does not appear to adversely affect the loggerhead shrike. Ash is contained within the landfill; fugitive dust and leakage are controlled by watering fresh ash daily. Sampling and analysis of monitoring wells around the landfill as part of the Boardman Plant Groundwater Monitoring Program have confirmed no impact to groundwater from leaching (PGE 2002b).

The need for additional by-product storage may impact the shrike by changing the condition of approximately 220 acres of suitable habitat on PGE Boardman Plant property south of Carty Reservoir. Approximately 40 acres of the total area will be developed and in use at any one time as a by-product disposal site, or landfill. New landfills of a similar size will be developed incrementally over time as needed. When an existing landfill becomes full, it will be decommissioned, covered with at least 24 inches of soil, and revegetated.

It is anticipated that maintenance and improvement where feasible of the PGE Conservation Area and the Farm Conservation Areas, in addition to the Conservation Commitments of all parties to this Agreement, will result in a long-term beneficial impact to the loggerhead shrike population.

9.3.4 Oregon Department of Fish and Wildlife

Research on the Covered Species may benefit the species by guiding adaptive management and conservation practices. ODFW may impact the loggerhead shrike through research and biological monitoring over the Covered Area. ODFW may conduct ground surveys during the shrike's nesting period and may, eventually, wish to collect a limited number of individuals for scientific purposes. However, the small number that may be collected would have no measurable impact on the overall population.

9.4 SAGE SPARROW

9.4.1 Threemile Canyon Farms

Sage sparrow habitat occurs in the southwest portion of the Farm, in the future agricultural area. According to population estimates discussed in Section 5.2.4.4, within this area of low quality habitat there are approximately seven potential sage sparrow territories. It should be anticipated that the Farm's Covered Activities will result in direct and indirect impacts to these potential territories on the Covered Area. Grazing in the Farm Conservation Areas may indirectly impact the sage sparrow by degrading nesting and foraging habitat. For the purposes of this Agreement, it should be assumed that, in addition to the impacts noted above, all sage sparrow nesting, foraging and roosting habitat will be removed from the yet to be developed portions of the Farm as a result of the Farm's Covered Activities.

9.4.2 The Nature Conservancy

All activities over the Farm Conservation Area will be conducted with the intent of avoiding any direct or indirect impact to sage sparrows or their habitat; however, some of Covered Activities may impact this species. Fire suppression activities, such as discing and equipment access, may directly impact individuals if conducted during the breeding season, or may indirectly impact the species by disturbing suitable habitat when individuals are not present. Biological monitoring, prescription burning, vehicle access

and cleanup of abandoned refuse sites are not anticipated to have any measurable impacts to the sage sparrow or suitable habitat. If the Farm, ODFW, USFWS and TNC mutually elect to allow hunting on the Farm Conservation Areas, it is not anticipated to impact the sage sparrow as it will occur outside the breeding season. Over the long term, it is anticipated that the status of the sage sparrow will improve through the Covered Activities and Conservation Commitments on the Farm Conservation Area.

9.4.3 Portland General Electric

There is no sage sparrow habitat within the PGE Boardman Plant property; therefore, there are no anticipated impacts to the sage sparrow or its habitat associated with the PGE Covered Activities.

9.4.4 Oregon Department of Fish and Wildlife

Research on the Covered Species may benefit the species by guiding adaptive management and conservation practices. ODFW may impact the sage sparrow through research and biological monitoring over the Covered Area. ODFW may conduct ground surveys during the sparrow's nesting period and may, eventually, wish to collect a limited number of individuals for scientific purposes. However, the small number that may be collected would have no measurable impact on the overall population.

10 ASSURANCES PROVIDED

Through this MSCCAA and accompanying section 10(a) permits, the USFWS provides the Permittees assurances in accordance with the current regulations codified at 50 CFR 17.22(d)(5) and 17.32(d)(5) (collectively, the "Assurances Regulations" and the USFWS Candidate Conservation Agreement with Assurances Final Policy [CCAA Policy]) (USFWS and NMFS 1999). Upon the listing of any Covered Species, the permits will authorize the Permittees to incidentally take any such species as long as such take is consistent with the MSCCAA and accompanying permits. As further described below, the Assurances Regulations and the CCAA Policy provide further assurances to the Permittees participating in the MSCCAA that the USFWS will not require additional conservation or mitigation measures, or the commitment of additional land, water, or compensation, or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon for the Covered Species should any of the Covered Species become listed in the future.

"Changed circumstances" are those reasonably anticipated changes in circumstances affecting a Covered Species or its habitat within the Covered Area. Based on historic patterns within the communities of the Covered Area, the changes in circumstances with the potential to impact Covered Species or their habitat are wildfire, drought and disease. These natural events may occur within the Covered Area and it is reasonable to assume that they may occur over the twenty-five year term of the Agreement.

Wildfire season within the Covered Area is from June through September. By June the Washington ground squirrels have returned to their dens for hibernation; however, the wildfires may occur during the breeding season for the other Covered Species. The Farm Conservation Area Wildfire Response Plan (**Appendix I**) should help to minimize impacts to Covered Species and their habitats. The effects of a drought or disease could impact any of the Covered Species during their breeding season or, for the Washington ground squirrel, during dormancy.

Due to the variation in possible severity, scope, effects, and necessary conservation measures, however, it is not possible to identify specific measures to address wildfires, drought, or disease at this time. During the duration of the MSCCAA and permits, should any of these changed circumstances occur within the Conservation Areas or suitable habitat of any Covered Species located within the Undeveloped Areas, the applicable Permittee(s) and USFWS will work in good faith to minimize post-fire, drought or disease impacts to affected Covered Species. Should any uncontrolled fire within the Farm Conservation Areas occur, however, TNC will also assess the severity of the fire, develop a restoration plan to address any active management needed for habitat recovery, and increase monitoring intensity and frequency to track natural recovery and/or active restoration efforts. The active restoration would depend on the intensity of the fire and could include weed control, seeding of native plants (grasses and, as appropriate, shrubs),

and livestock exclusion. All plant materials used for restoration will come from locally collected seed stock.

If additional conservation and mitigation measures are deemed necessary to respond to any other changed circumstances not provided for in this MSCCAA, the USFWS will not require any conservation and mitigation measures in addition to those provided for in the MSCCAA without the consent of the applicable Permittee, provided the MSCCAA and permit are being properly implemented.

"Unforeseen" circumstances means changes in circumstances affecting a Covered Species or their habitats within the Covered Area that could not be reasonably anticipated at this time and that results in a substantial and adverse change in the status of the Covered Species. If conservation or mitigation measures are deemed necessary in the advent of an unforeseen circumstance, after the USFWS satisfies its primary conservation obligations under the Assurances Regulations and CCAA Policy, the USFWS may require additional conservation measures that involve modifications within the Conservation Areas or to the MSCCAA's operating conservation program for the affected Covered Species. Consistent with its assurances to the Permittees, however, the USFWS will not require the commitment of additional land, water, or compensation, or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon for the Covered Species without the consent of the affected Permittee(s).

These assurances will be authorized with the issuance of an enhancement of survival permit under section 10(a)(1)(A) of the ESA and in full compliance with the assurances, burdens, and obligations set forth in the Assurances Regulations and the CCAA Policy.

10.1 TRANSFER OF OWNERSHIP

By signature of the Agreement, the Permittees agree to notify the USFWS of planned or pending change of property ownership within the Covered Area at least 30 days in advance of such a transfer of ownership. After notification of change in ownership, the USFWS will contact the new or prospective property owner to explain the prior Agreement and to determine whether the new property owner would like to continue the original Agreement or enter a new Agreement. If a participating property owner transfers ownership of the enrolled property and agrees to become a party to the original Agreement, the USFWS will regard the new property owner as having the same rights and obligations as the original property owner. Actions taken by the new participating property owner that result in the take of species covered by this Agreement would be authorized if the new property owner maintains the terms and conditions of the original Agreement and section 10(a) permit. If the new property owner does not become a party to the Agreement, the new owner would neither incur responsibilities under the Agreement nor receive any assurances relative to ESA section 9 restrictions that might result from listing of the Covered Species.

11 FUNDING

A financial commitment has been made by Threemile Canyon Farms to help meet the habitat protection and restoration needs within the Farm Conservation Areas. Habitat conditions have degraded over the past several decades through exotic plant infestations, fire suppression, habitat fragmentation, and other environmental and human influences; therefore, active habitat restoration and management is required. Through this Agreement, the Farm and PGE are committed to dedicate the financial resources that may be required to conduct their Conservation Commitments and responsibilities outlined in this MSCCAA. TNC is committed to using the funding that it is provided, through the Farm and other funding sources, to conduct its Conservation Commitments and responsibilities outlined in this MSCCAA.

Threemile Canyon Farms has committed to fund a portion of TNC's management activities within the Farm Conservation Areas up to a maximum of $130,000 annually. Accordingly, TNC's actual costs will determine the specific level of annual funding up to the maximum $130,000 (indexed for inflation), and will continue until an endowment is in place to meet annual funding needs. Under this scenario, TNC will continue to bill the Farm for actual costs up to a maximum of $130,000 (indexed for inflation). Alternatively, the Farm committed to fund up to a maximum of $2,500,000 (dependent upon the sale price) for the endowment from the proceeds of the sale of the Conservation Areas for long-term funding security. TNC anticipates leveraging the funds from the Farm to secure additional funding for the project (approximately $20,000 to $40,000 per year through Federal and state grants and contracts).

The minimum amount that TNC has estimated for maintaining current conditions within the Farm Conservation Areas (barring a large scale fire of more than 300 acres) is at least $50,000 in start-up funding and approximately $165,000 per year. These funds will be used to satisfy the obligations within this Agreement and the Conservation Commitments on the Farm Conservation Areas.

Threemile Canyon Farms and TNC will continue to work together to identify additional long-term funding sources. Grant funds may become available through Federal funding programs, such as the USFWS Grants Program, administered by USFWS. Threemile Canyon Farms and TNC will apply to USFWS for funding of the MSCCAA through this program.

Threemile Canyon Farms will make available farm equipment and labor to assist TNC in habitat restoration and maintenance activities. TNC will determine and guide appropriate uses of those resources, if scheduling and cost is mutually agreeable. Commitments by the Farm for labor and equipment may be credited against the maximum $130,000-per–year (indexed for inflation) funding commitment to TNC, if mutually agreed.

Threemile Canyon Farms will also make available farm equipment and labor for fire prevention on the Farm Conservation Area. These expenditures will vary from year to year depending on the severity of the fire season and the location of the fires. During the 2002 fire season, Threemile Canyon Farms contributed $6,000 alone in personnel and equipment to fight two fires on or near the Farm Conservation Area. These efforts prevented one fire from entering the Farm Conservation Area and minimized the extent of another fire. Commitments by the Farm for labor and equipment for fire prevention and suppression may be credited against the maximum $130,000-per-year (indexed for inflation) funding commitment to TNC, if mutually agreed. Threemile Canyon Farm is investigating forming a fire management area, which would provide eligibility for Federal and/or state funding and access to surplus fire equipment.

PGE, through its normal budgeting process, will provide funding to support the achievement of its Conservation Commitments and the responsibilities outlined in the MSCCAA. PGE will prepare a management plan for its Conservation Area that will include estimated expenditures. Though expenditures are expected to vary from year to year and are difficult to predict, PGE could expend up to approximately $33,000 or more per year (both internal and external costs) to fulfill its Conservation Commitments. PGE's financial commitments will only apply to the PGE Conservation Commitments outlined in this Agreement.

Should any of the Permittees fail to satisfy the terms of this Agreement, including the management strategies detailed under their respective Conservation Commitments, they will no longer be covered by the section 10(a) permits. The revocation, suspension, termination, or relinquishment of any Signatory's permit, however, shall not affect any other Signatory's permit, nor the continuing incidental take authorization under the agreed-upon terms of the permit and this Agreement.

Implementation of this Agreement is subject to the requirements of the Anti-Deficiency Act (31 USC 1341 [1988]) and the availability of appropriated funds. USFWS may apply for Federal funding that has been reserved for the candidate species program for habitat conservation and CCAA implementation in accordance with the agreement; however, nothing in this Agreement will be construed by the parties to require the obligation of any money from the U.S. Treasury. The Signatories acknowledge that USFWS will not be required under this Agreement to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

12 DURATION OF THE AGREEMENT AND PERMITS

This Agreement and the associated section 10(a) permits will be effective for a duration of 25 years from the date the MSCCAA is fully executed and the permits are issued by USFWS.

13 MONITORING AND REPORTING

The purpose of monitoring within the MSCCAA is to ensure compliance and assess the effectiveness of the Conservation Commitments agreed to by the Permittees. Monitoring also provides a basis for adaptive management provisions that will guide conservation activities in the Conservation Areas as new scientific information becomes available, and a basis to monitor the levels of take that are occurring across the Covered Area as a result of the Covered Activities. Two types of monitoring within this monitoring program are compliance monitoring of the Conservation Commitments and biological effectiveness monitoring of vegetation communities and wildlife species. The Farm, TNC, and PGE have all agreed to specific Conservation Commitments and monitoring requirements in this Agreement. Each entity will be individually responsible for satisfying its monitoring and reporting obligations under the terms of the MSCCAA and permits. The Farm and TNC will collectively work together, however for any monitoring and reporting obligations relating to the Farm Conservation Areas.

13.1 COMPLIANCE MONITORING

Compliance monitoring is necessary to ensure that the Conservation Commitments set forth in this Agreement have been completed and terms and conditions of the permits are met. Compliance monitoring is also intended to provide USFWS with an estimate of the amount of take that is occurring over the Covered Area as a result of the Covered Activities. Compliance monitoring commitments for each party of the Agreement are provided below. The following monitoring commitments correspond to the Conservation Commitments provided in Section 7 for each Permittee.

13.1.1 Threemile Canyon Farms

Threemile Canyon Farms will prepare an annual monitoring report describing actions taken to fulfill its Conservation Commitments under this Agreement. The Farm has committed to the following monitoring actions of its Conservation Commitments.

1. A total of 22,600 acres within the Covered Area have been designated as Farm Conservation Areas. The conservation easement for the Farm Conservation Areas is included within **Appendix D**. No further monitoring will be conducted to satisfy this Conservation Commitment.

2. The Farm has established a 250-foot buffer zone separating the Farm Conservation Areas from farm activities. In order to monitor the maintenance and effectiveness of the buffer zone, the Farm will document all activities that may impact the Covered Species within the 250-foot buffer zone in the annual report to be submitted to USFWS. The potential effects of these activities on the Covered Species or their habitats will also be discussed within the report.

3. The Farm has agreed to contribute a maximum of $130,000 per year (indexed for inflation) for management activities on the Farm Conservation Areas until permanent financing is secured. The Farm will document financial contributions (including in-kind donations) to TNC in the annual report to be submitted to USFWS.

4. The Farm has first response responsibility for wildfire on the Farm Conservation Areas and the undeveloped portions of the Farm. The Farm will implement its responsibilities within the Wildfire Response Plan (**Appendix I**). As part of its monitoring requirements, the Farm will coordinate with TNC to prepare an annual report to be submitted to USFWS. The report will describe the location of each fire, response and control measures implemented, and number of acres burned. The report will also include a brief discussion of the fires' intensity, the expected effects of the fires to plant community maintenance and improvement efforts, and effects to the Covered Species and their habitats and any active restoration activities.

5. Subject to the terms of the existing grazing lease agreement, the Farm will not allow grazing in identified habitat areas between May 15 and November 1. The annual report to be submitted to USFWS will discuss grazing activities for the year including turn-out and round-up dates, approximate number of animal units grazed, and the areas that were grazed.

6. To facilitate translocation, the Farm will notify ODFW and USFWS 30 days in advance of when they expect to incidentally take any Covered Species. In addition to those monitoring requirements described under 13.2.1, the annual report to be submitted to USFWS will document dates of notification to ODFW and USFWS.

7. If hunting is deemed consistent with the operational activities within the Farm development areas, the Farm will document methods used to restrict hunting and the effectiveness in limiting take of Covered Species in its annual report to USFWS.

13.1.2 The Nature Conservancy

TNC currently manages, and may subsequently own, the Farm Conservation Areas dedicated by Threemile Canyon Farms. TNC will develop an annual monitoring report describing the actions taken to fulfill its Conservation Commitments within this Agreement. TNC has committed to the following monitoring actions of its Conservation Commitments.

1. TNC will manage the Farm Conservation Areas to maintain, and improve where feasible and funding allows, the integrity of the existing native vegetation and to benefit the Covered Species. Biological monitoring and reporting to document plant community maintenance and restoration efforts is described under the Biological Effectiveness Monitoring section.

2. TNC will manage noxious weeds in the Farm Conservation Areas with the intent of controlling or eradicating them to the greatest extent practicable while minimizing impacts to surrounding native vegetation and wildlife. To ensure this Conservation Commitment is being met, TNC will prepare a vegetation management and weed abatement plan within six months of the Agreement and will provide this plan to USFWS. One component of this plan will include the commitment to prepare an annual report documenting the target species, control measures implemented (e.g., biological, cultural, chemical, grazing), timing, and areas treated. This annual report will be provided to USFWS.

3. TNC will implement fire control measures throughout the Farm Conservation Areas according to the Wildfire Response Plan (**Appendix I**). As part of its monitoring requirements, TNC will coordinate with the Farm to prepare an annual report to be submitted to USFWS. The report will describe the location of each fire started, response and control measures implemented, and number of acres burned. The report will also include a brief discussion of the fires' intensity, the anticipated effects of the fire to plant community maintenance and improvement efforts and to the Covered Species and their habitats, and any active restoration activities.

4. For the duration of the grazing lease agreement, TNC will work closely with the Farm and the grazing leaseholder to reduce impacts of grazing on Covered Species and their habitat. TNC will document its recommendations and an assessment of its implementation and effectiveness in meeting the MSCCAA conservation objectives in an annual report forwarded to the USFWS for the duration of the lease agreement.

5. Vehicle and equipment access will be planned and implemented to minimize potential impacts to the Covered Species and their habitats. Any unforeseen impacts to Covered Species and their habitats by vehicles or equipment will be documented in the annual report to be provided to USFWS.

6. If ODFW allows a controlled hunt on the Conservation Area, TNC will provide any observational data it collects on hunting use and on any impacts to Covered Species and their habitat for its annual report to USFWS.

7. While allowing biological monitoring and plant community maintenance and improvement activities, TNC will maintain a buffer zone of 0.6 miles on the Farm Conservation Areas around known active ferruginous hawk nest sites where human disturbances, such as discing and vehicle access, are minimized during the nesting

season (March 1 to July 15). TNC will conduct surveys to identify locations of active ferruginous hawk nests, will notify all employees and contractors about the location of the buffer zones, and will report monitoring and maintenance activities. Unauthorized uses in the buffer zones will be reported to the Farm and, if corrections cannot be made, the Farm and TNC will notify USFWS. Surveys and reporting are described in the Biological Monitoring section.

13.1.3 Portland General Electric

PGE has designated a 880-acre Conservation Area within its Boardman Plant property to be maintained for the benefit of the Covered Species for the life of this Agreement. PGE will develop an annual monitoring report describing actions taken to fulfill its Conservation Commitments. PGE has committed to the following monitoring actions of its Conservation Commitments.

1. PGE has committed to not undertake any development activities within the 880-acre Conservation Area for the duration of this Agreement. Activities that may occur within this area are described under the PGE Conservation Commitments (Section 7.3.1). PGE will submit an annual report to USFWS documenting activities that occurred within the PGE Conservation Area and known impacts to the Covered Species or their habitats from these activities.

2. PGE will continue to control the establishment and spread of noxious weeds throughout its Boardman Plant property. PGE will submit an annual report to USFWS documenting noxious weed control activities that occurred on its Boardman Plant property. The report will document target species, control measures implemented (e.g., biological, cultural, chemical), timing, and areas treated.

3. PGE will not allow grazing in its Conservation Area between April 15 and December 1. The annual report to USFWS will discuss grazing activities for the year including turn-out and round-up dates, approximate number of animal units grazed, and the areas that were grazed.

4. PGE will implement wildfire control measures on its Boardman Plant property, including the PGE Conservation Area, in order to protect the Plant and related facilities, and to protect species habitats on the Conservation Area and on adjacent properties covered by this Agreement. PGE will prepare an annual report that will describe the location of each fire started, response and control measures implemented, and number of acres burned. The description will also include a brief discussion of the fires' intensity, the anticipated effects of the fire to plant community maintenance and improvement efforts, and to Covered Species and their habitats.

5. To facilitate translocation, PGE will notify ODFW and USFWS at least 30 days in advance of when they expect to incidentally take any Covered Species on those

undeveloped portions of the Boardman Plant property that are outside the designated PGE Conservation Area. The annual report to be submitted to USFWS will document dates of notification to ODFW and USFWS.

13.1.4 Oregon Department of Fish and Wildlife

1. If hunting is deemed consistent with the conservation objectives and is allowed within the Farm Conservation Areas, ODFW will provide TNC with documentation of the methods used to manage hunting and minimize impacts to the Covered Species. TNC will then include this information within its annual report to USFWS.

13.2 BIOLOGICAL EFFECTIVENESS MONITORING

Biological effectiveness monitoring is necessary to measure the habitat conditions within the Conservation Areas and the Covered Species' response to the Conservation Commitments contained in this Agreement. The goal of the biological monitoring program within the Conservation Areas is to assess how the Conservation Commitments are affecting long-term change and ecosystem improvements to the benefit of the Covered Species. Biological monitoring will involve both vegetation and wildlife monitoring within the Conservation Areas. The monitoring of the Farm and PGE Conservation Areas will be conducted according to professional judgment and discussions with USFWS and ODFW, the following is provided to guide monitoring activities.

The objectives for vegetation monitoring are to document habitat conditions for Covered Species and provide information about changes in vegetation that may have resulted from management activities and/or disturbances (i.e., fire, fire suppression activities, unauthorized access, etc.).

The objective of wildlife monitoring will be to track populations of the Covered Species within the Conservation Areas. There is less emphasis on wildlife monitoring than vegetation monitoring as it is believed that Covered Species will use suitable habitats and that improvements to vegetation communities should lead to increased populations of the Covered Species.

13.2.1 Threemile Canyon Farms

In order to provide documentation of activities that have the potential to take individuals or suitable habitat of any of the Covered Species, the Farm will provide documentation of those activities that warranted notification to ODFW and USFWS in its annual report to USFWS. This documentation will consist of a summary of the location and the type of activity.

13.2.2 The Nature Conservancy

13.2.2.1 Vegetation

The distribution and abundance of the ferruginous hawk, loggerhead shrike and sage sparrow are closely related to habitat size and condition. Vegetation and vegetation condition will be remapped for the entire Farm Conservation Area once every eight years using air photos, satellite images, ground-truthing, and photo documentation. Vegetation will be remapped more frequently in areas receiving experimental management treatments and/or where large habitat modifying events, such as fires, occur. In addition, repeated surveys, permanent and/or temporary vegetation sampling plots may be established to augment mapping data or document changes not readily discernable from imagery. The results of the vegetation monitoring will be recorded in Geographic Information System and will be provided to ODFW and USFWS for their review.

Except in emergency situations (e.g., wildfire), TNC will survey areas prior to potentially harmful ground-disturbing activities (e.g., discing and drilling) and avoid areas with an intact cryptogamic crust.

13.2.2.2 Wildlife

The four Covered Species will be systematically monitored to detect changes in distribution and abundance over time within the Farm Conservation Area. For each species a sampling frequency range has been identified based on an understanding of how slowly these communities change over time in the Columbia Basin. In each case the longer frequency assumes little change in habitat over time and the shorter frequency reflects the need to monitor using an adaptive management model that reflects known or anticipated changes due to habitat modifying events such as wildfire or climate extremes. Knowledge of the ecological processes within the Covered Area suggests that in case of habitat modifying events monitoring could occur as frequently as every two years, but in the absence of these events monitoring could occur every five years.

13.2.2.2.1 Washington Ground Squirrel

Monitoring of the Washington ground squirrel will address both changes in size of existing colonies and changes in number and distribution of colonies over time. To track the spatial distribution of colonies and the creation of new colonies over time, TNC will sample available habitat within the Farm Conservation Area every two to five years. An adaptive management approach will be taken that will increase the frequency of sampling should habitat modifying events occur such as wildfire or extreme weather conditions. Sampling will be done following the protocol established by Morgan and Nugent (1999). In addition TNC will sample known colonies every one to three years to document changes in their extent and activity over time. These two approaches taken together should produce a picture of the status, distribution, and movement of the Washington ground squirrel over time.

13.2.2.2.2 Ferruginous Hawk

There are a variety of means by which the number of nesting raptors can be quantified (Fuller and Mosher 1980). As a component of its monitoring activities on the Farm Conservation Area, TNC will conduct surveys every three years to document changes in the number of nesting ferruginous hawks on the Farm Conservation Area. This will include the use of known nest sites and identification of new nest sites. TNC will include within its report the survey protocol followed, the areas covered, and the results of the surveys. To supplement these surveys, additional active nest site surveys may be conducted by ODFW.

13.2.2.2.3 Loggerhead Shrike

Beginning in spring 2003, the loggerhead shrike population will be monitored at least once every five years. Within the Farm Conservation Area, nest location and monitoring provides the best indication of breeding success and population status. Because of the amount of time involved in nest monitoring and the slow change in habitat conditions, nest counts will be conducted once every five years and after any large habitat modifying event such as wildfire. Monitoring protocol will follow that used by Holmes and Geupel (1998) and that used by Humple and Holmes (2001).

13.2.2.2.4 Sage Sparrow

Beginning in spring 2003, sage sparrow populations will be monitored at least once every three years. Potential nesting habitat for the sage sparrow is small and restricted to the southwestern corner of the Farm Conservation Area. The conservation goal for the sparrow is to maintain and if possible increase the number of nesting territories. There are a number of ways that sage sparrow populations can be monitored including nest counts, point counts, and territory counts/mapping. In sagebrush, nests are very difficult to locate. More consistent results can be achieved by identifying male/female pairs and mapping their nesting territories (Morgan 2002). Mapping of territories will be done once every three years and after any large habitat modifying event such as a wildfire. Sampling will be conducted using a modified “strip adaptive cluster sample” method (Thompson 1992) that is discussed in detail by Humple and Holmes (2001).

13.2.3 Portland General Electric

PGE is currently engaged in an active biological monitoring program in accordance with Oregon Administrative Rules, the Plant’s Water Pollution Control Facilities permit and the Plant’s EFSC Site Certificate. PGE commits to continue wildlife monitoring as required by the Oregon Administrative Rules and the Plant’s Water Pollution Control Facilities permit and EFSC Site Certificate. Current elements of PGE’s monitoring program include:

- monthly raptor surveys conducted along established transects

- monitoring the breeding outcome of known raptor nest sites
- monthly breeding bird counts during the months of April, May, and June using the point count method along three established surveys routes within three habitat types (grassland habitat, sage habitat, riparian habitat)
- all observed wildlife (including mammals) are recorded as incidental sightings during surveys
- aerial photography of the Boardman Plant property is collected on an annual basis

Washington ground squirrel surveys are not part of PGE's state-required Ecological Monitoring Program; however, PGE will conduct presence/absence surveys for the ground squirrel on an every-other-year basis throughout its Conservation Area. These surveys will be conducted specifically for biological monitoring of the MSCCAA and will be conducted throughout the 25-year term of the Agreement.

PGE also commits to conduct vegetation community mapping once every eight years and two years following fire on its Boardman property. This vegetation community mapping may be used to determine how PGE's Covered Activities and Conservation Commitments are impacting suitable habitat for the Covered Species. This mapping will be conducted specifically for biological monitoring of the MSCCAA and will be conducted throughout the 25-year term of the Agreement. The results of these surveys will be included in the appropriate annual report to be provided to USFWS.

14 SIGNATURES

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16 APPENDICES

APPENDIX A

Legal Descriptions of the Covered Area

APPENDIX B

Section 10(a)(1)(A) "Enhancement of Survival" permits

APPENDIX C

NEPA DOCUMENT (Environmental Assessment)

APPENDIX D

Conservation Easement

APPENDIX E

Plants and Plant Communities Survey

APPENDIX F

Survey Areas for the Washington Ground Squirrel in the Covered Area

APPENDIX G

USFWS Species Information

APPENDIX H

MOU and Associated Voluntary Conservation Measures

APPENDIX I

Farm Wildfire Response Plan

APPENDIX J

PGE Wildland Fire Response Plan