

**BIOLOGICAL REVIEW OF THE HANFORD
SOLID WASTE EIS – BORROW AREA C
(600 Area), STOCKPILE AND CONVEYANCE
ROAD AREA (600 Area), ENVIRONMENTAL
RESTORATION DISPOSAL FACILITY (ERDF)
(600 Area), CENTRAL WASTE COMPLEX (CWC)
EXPANSION (200 West), 218-W-5 EXPANSION
AREA (200 West), NEW WASTE PROCESSING
FACILITY (200 West), UNDEVELOPED PORTION
OF 218-W-4C (200 West), WESTERN HALF &
NORTHEASTERN CORNER OF 218-W-6 (200
West), DISPOSAL FACILITY NEAR PLUTONIUM-
URANIUM EXTRACTION (PUREX) FACILITY
(200 East), ECR #2002-600-012b**

M. Sackschewsky

April 2003



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7 April 2003

Mr. Kent McDonald

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Dear Mr. McDonald:

BIOLOGICAL REVIEW OF THE HANFORD SOLID WASTE EIS – BORROW AREA C (600 Area), STOCKPILE AND CONVEYANCE ROAD AREA (600 Area), ENVIRONMENTAL RESTORATION DISPOSAL FACILITY (ERDF) (600 Area), CENTRAL WASTE COMPLEX (CWC) EXPANSION (200 West), 218-W-5 EXPANSION AREA (200 West), NEW WASTE PROCESSING FACILITY (200 West), UNDEVELOPED PORTION OF 218-W-4C (200 West), WESTERN HALF & NORTHEASTERN CORNER OF 218-W-6 (200 West), DISPOSAL FACILITY NEAR PLUTONIUM-URANIUM EXTRACTION (PUREX) FACILITY (200 East), ECR #2002-600-012b

Project Description:

This letter report is a supplement to the letter reports submitted previously under ECRs #2002-600-012 (Borrow Area C) and #2002-600-012a (CWC expansion). This letter report covers all areas that may be subject to surface disturbance under all the Alternative Groups (A, B, C, D₁, D₂, D₃, E₁, E₂, E₃, and the No Action Alternative) of the Hanford Solid Waste Environmental Impact Statement (HSW EIS), except for the following Low-Level Burial Grounds (LLBGs). The LLBGs proposed for use in the HSW EIS that are not subject of this letter report (218-W-3A, 218-W-3AE, 218-W-4B, 218-W-5, the developed portion of 218-W-4C, and the eastern half [except the northeastern corner] of 218-W-6 in the 200 West Area; and 218-E-10 and 218-E-12B in the 200 East Area) are surveyed annually. Annual letter reports concerning these are currently sent to Mr. Brett M. Barnes of Fluor Hanford, Inc.

A general description of the location and projected use of Borrow Area C is as follows.

- Borrow Area C is a large polygonal area located adjacent to the south side of Highway 240, is centered approximately on the intersection of Beloit Avenue and Highway 240, and consists of approximately 2,289 acres.
- Although Borrow Area C is located on the Arid Lands Ecology Reserve (ALE) side of Highway 240, it is clearly identified as a possible borrow area in the *Comprehensive Land Use Plan Environmental Impact Statement* (DOE-RL 1999).
- Silt loam and basalt would be removed from Borrow Area C and used in the construction of closure covers/caps for the LLBGs. Excavation depth is as yet undetermined, but will be a minimum of 2 m. Material removal would likely occur sometime after 2030.

The area designated for the stockpile and conveyance road lies just north of Highway 240, across from Borrow Area C. This area would be used to stage borrow materials excavated from Borrow Area C.

ERDF is located on the 200 Area Plateau between 200 West and 200 East and is a candidate site for near-surface disposal of immobilized low-activity waste (ILAW).

The area designated for the CWC expansion is located just south of the CWC and is a candidate site for construction of above-ground waste storage facilities and near-surface disposal of ILAW.

The 218-W-5 Expansion Area is located northwest of the CWC and its future use has not yet been determined.

The site proposed for the new waste processing facility is located just northwest of the Waste Receiving and Processing Facility (WRAP).

The undeveloped portion of the 218-W-4C LLBG and the western half and northeastern corner of the 218-W-6 LLBG are candidate sites for near-surface waste disposal.

The area designated for the proposed disposal facility located just south of PUREX is a candidate site for near-surface disposal of ILAW.

Further detail regarding the location and projected uses of the above-named areas is provided in the HSW EIS.

Survey Objectives:

- To determine the occurrence in the project areas of plant and animal species protected under the Endangered Species Act (ESA), candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitor by the state of Washington, and species protected under the Migratory Bird Treaty Act.
- To evaluate and quantify the potential impacts of disturbance on priority habitats and protected plant and animal species identified in the survey.

Survey Methods:

- Pedestrian and ocular reconnaissance of Borrow Area C were performed during summer 2002 by C. Duberstein and M.R. Sackschewsky on June 20; C. Duberstein and M.R. Sackschewsky on July 3; C. Duberstein on July 9; and J.M. Becker, M.R. Sackschewsky, and C. Duberstein on July 18, 23, and 24.
- Pedestrian and ocular reconnaissance of the stockpile and conveyance road area were performed by J.M. Becker and M.R. Sackschewsky on July 1, 2002.
- Pedestrian and ocular reconnaissance of the entire ERDF site have not yet been performed. A November-December survey of a previously contemplated ERDF rail line was conducted in 1993. Sections 4 and 5 of the rail line fell within the northern half of the ERDF site (Brandt

1994). In addition, some cursory information on the habitats that existed within ERDF is found in DOE-RL (1995).

- Pedestrian and ocular reconnaissance of the CWC expansion area were performed by M.R. Sackschewsky and J.M. Becker on June 26, 2002.
- Pedestrian and ocular reconnaissance of the 218-W-5 Expansion Area were performed by M.R. Sackschewsky and L. Walls on June 27, 2002 and by J.M. Becker and M.R. Sackschewsky on July 1, 2002.
- Pedestrian and ocular reconnaissance of the site proposed for the new waste processing facility were performed by M.R. Sackschewsky and J.M. Becker on June 26, 2002.
- Pedestrian and ocular reconnaissance of the undeveloped portion of the 218-W-4C LLBG were performed by J.M. Becker and L. Walls on May 28, 2002.
- Pedestrian and ocular reconnaissance of the western portion of the western half of the 218-W-6 LLBG were performed by M.R. Sackschewsky on June 5, 2002. Pedestrian and ocular reconnaissance of the eastern portion of the western half of the 218-W-6 LLBG were performed most recently by M.R. Sackschewsky on June 15, 2001. Field surveys were not performed during 2002 in the eastern portion of the western half of the 218-W-6 LLBG since herbicide spraying in 2001/2002 had killed most broad-leaved plants.
- Pedestrian and ocular reconnaissance of the northeastern portion of the 218-W-6 LLBG were performed most recently by M.R. Sackschewsky on June 15, 2001. Field surveys were not performed during 2002 in the northeastern portion of the 218-W-6 LLBG since herbicide spraying in 2001/2002 had killed most broad-leaved plants.
- Pedestrian and ocular reconnaissance of the area of the proposed disposal facility near PUREX were performed by J.M. Becker, C. Duberstein, M.R. Sackschewsky, and R. Durham on May 13, 2002.
- The dominant plant species in each habitat in each of the above-named project areas, with the exception of ERDF, were identified. A general characterization of the biota present at the ERDF site prior to the 24 Command is provided using Brandt (1994) and DOE-RL (1995).
- Priority habitats and species of concern are documented as such in the following: Washington Department of Fish and Wildlife (WDFW 1994, 1996), Washington State Department of Natural Resources (WDNR 1997), and for migratory birds, U.S. Fish and Wildlife Service (FWS 1985). Lists of animal and plant species considered Endangered, Threatened, Proposed, or Candidate by the USFWS are maintained at 50 CFR 17.11 and 50 CFR 17.12.

Survey Results:

The 24 Command Fire, a range fire that occurred in late June–early July 2000, burned 163,884 acres on the central part of the Hanford Site and the Fitzner/Eberhardt Arid Lands Ecology (ALE) Reserve

(Baker 2000). The 24 Command Fire covered the 200 West Expansion Area, including the CWC expansion area and area designated for the new waste processing facility; a large area west and south of that location, including Borrow Area C and the stockpile and conveyance road area; and the southern portion of the corridor between the 200 West Area and 200 East Area, including the ERDF. The 24 Command fire substantially altered plant species composition from pre-fire conditions in most of these areas. The other areas of potential surface disturbance listed in the title or under the "Project Description" portion of this letter report were not affected by the 24 Command Fire.

Percent ground cover is provided parenthetically for dominant plant species.

600 Area

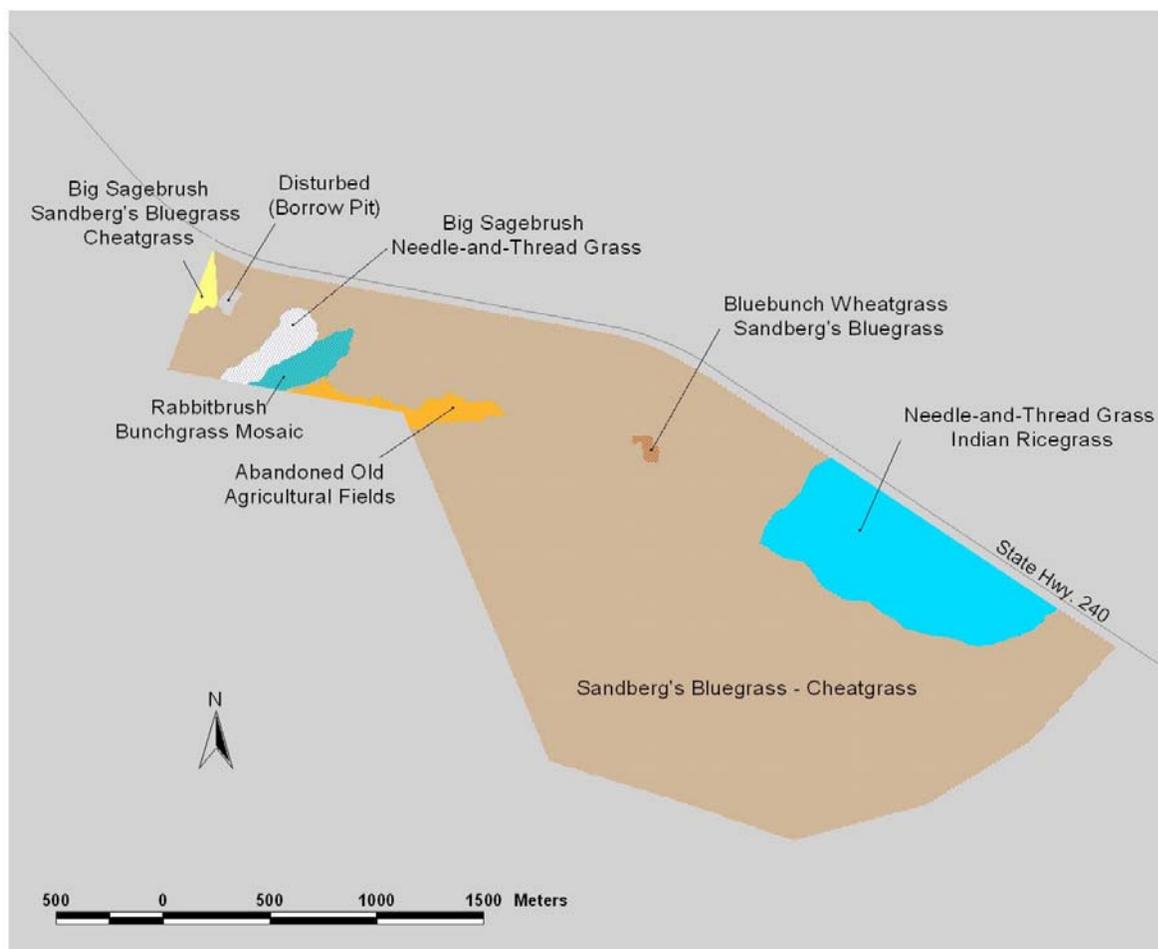
Borrow Area C -- Habitats. Most of the original vegetation in Borrow Area C was burned in the 24 Command fire of June 2000. Pre-fire plant communities and land cover types in Borrow Area C consisted of:

- needle-and-thread grass (*Stipa comata*)/Indian ricegrass (*Oryzopsis hymenoides*),
- big sagebrush (*Artemisia tridentata*)/needle-and-thread grass,
- bluebunch wheatgrass (*Agropyron spicatum*)/Sandberg's bluegrass (*Poa Sandbergii*),
- rabbitbrush (*Chrysothamnus* spp.)/bunchgrass mosaic,
- Sandberg's bluegrass/cheatgrass (*Bromus tectorum*),
- big sagebrush/Sandberg's bluegrass/cheatgrass,
- abandoned old agricultural fields, and
- disturbed (inactive borrow pit) (**Figure 1**).

Needle-and-thread grass/Indian ricegrass. The dominant plant species in this community currently are cheatgrass (50%), needle-and-thread grass (15%), and Indian ricegrass (10%). The pre-fire needle-and-thread grass/Indian ricegrass community should thus be re-designated cheatgrass/needle-and-thread grass/Indian ricegrass (**Figure 2**).

Big sagebrush/needle-and-thread grass. The community is currently much smaller than that defined by TNC (compare **Figures 1** and **2**). The dominant plant species in this community currently are needle-and-thread grass (20%) and cheatgrass (20%). The pre-fire sagebrush/needle-and-thread grass community should thus be re-designated needle-and-thread grass/cheatgrass (**Figure 2**).

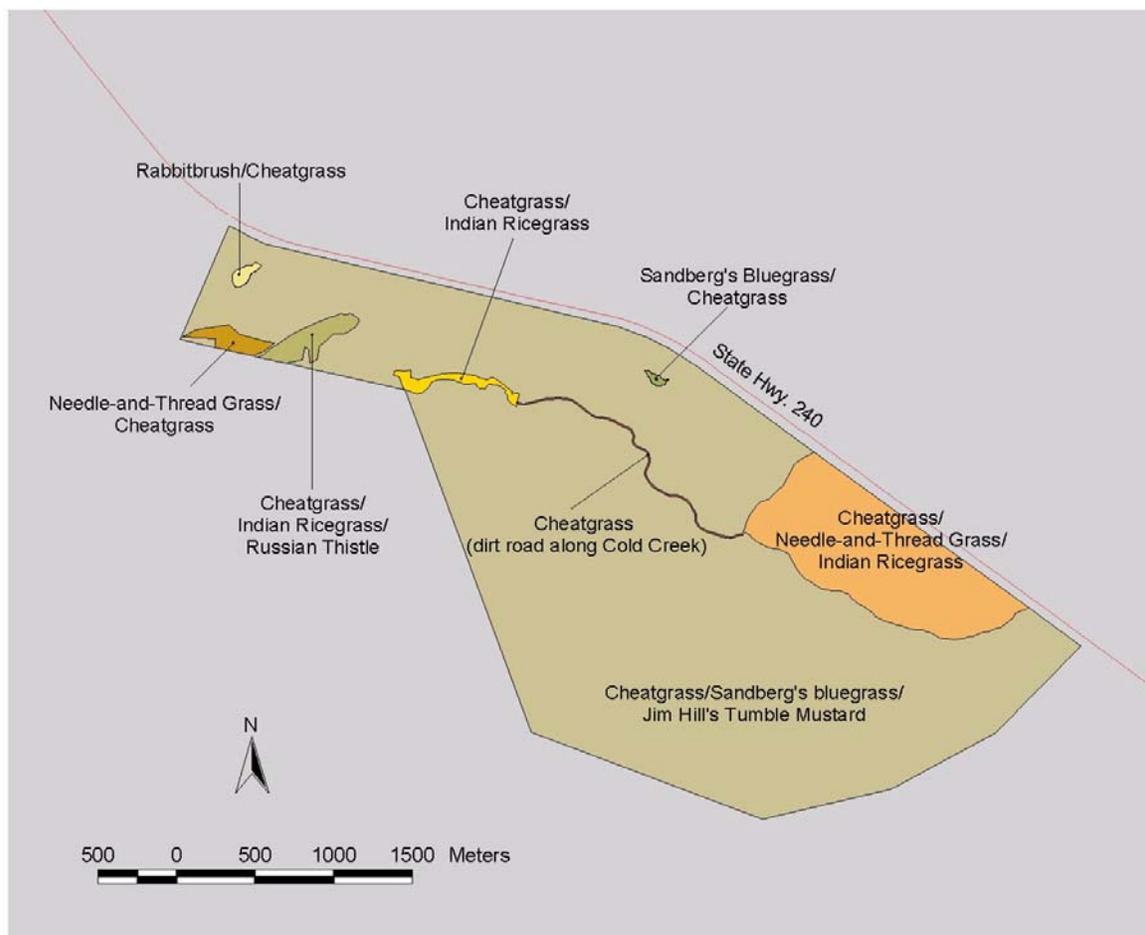
Figure 1. Plant communities in Borrow Area C prior to the 24 Command fire of June 2000 (Data collected 1994 and 1997 by TNC; 1991 and 1999 by Pacific Northwest National Laboratory [PNNL]. Map created January 2002 by PNNL).



Bluebunch wheatgrass/Sandberg's bluegrass. The dominant plant species in this community currently are Sandberg's bluegrass (40%) and cheatgrass (10%). The pre-fire bluebunch wheatgrass/Sandberg's bluegrass community should thus be re-designated Sandberg's bluegrass/cheatgrass (**Figure 2**).

Rabbitbrush/bunchgrass mosaic. The dominant plant species in this community currently are cheatgrass (20%), Indian ricegrass (10%), and Russian thistle (10%). The pre-fire rabbitbrush/bunchgrass mosaic community should thus be re-designated cheatgrass/Indian ricegrass/Russian thistle (**Figure 2**).

Figure 2. Plant communities in Borrow Area C after the 24 Command fire of June 2000 (Data collected June and July 2002 by PNNL. Map created October 2002 by PNNL).



Rabbitbrush/bunchgrass mosaic. The dominant plant species in this community currently are cheatgrass (20%), Indian ricegrass (10%), and Russian thistle (10%). The pre-fire rabbitbrush/bunchgrass mosaic community should thus be re-designated cheatgrass/Indian ricegrass/Russian thistle (**Figure 2**).

Sandberg's bluegrass/cheatgrass. The dominant plant species in this community, except for the dirt road along Cold Creek, currently are cheatgrass (55%), Sandberg's bluegrass (15%), and Jim Hill's tumble mustard (*Sisymbrium altissimum*) (10%), an alien, annual weed. The pre-fire Sandberg's bluegrass/cheatgrass community should thus be re-designated cheatgrass/Sandberg's bluegrass/Jim Hill's tumble mustard (**Figure 2**). Widely scattered mature big sagebrush (<1%), of which approximately 10% were alive, were observed in the southeastern portion of this community, within approximately 660 ft (200 m) of the border of Area C. The dominant plant species along the dirt road along Cold Creek is cheatgrass (50%), which should be considered a separate community (**Figure 2**).

Big sagebrush/Sandberg's bluegrass/cheatgrass. The dominant plant species in this community currently are cheatgrass (55%), Sandberg's bluegrass (15%), and Jim Hill's tumble mustard (10%). The

pre-fire big sagebrush/Sandberg's bluegrass/cheatgrass community should thus be re-designated cheatgrass/Sandberg's bluegrass/Jim Hill's tumble mustard (**Figure 2**).

Abandoned old agricultural fields. The dominant plant species in this community currently are cheatgrass (20%) and Indian ricegrass (10%). The pre-fire abandoned old agricultural fields should thus be designated cheatgrass/Indian ricegrass (**Figure 2**), particularly since the current designation provides no information on species composition.

Disturbed (inactive borrow pit). The inactive borrow pit was virtually unaffected by the 24 Command fire, although vegetation all around it was removed. The dominant plant species in this community are gray rabbitbrush (*Chrysothamnus nauseosus*) (5%) and cheatgrass (30%). Sagebrush is a minor component, at 1% cover. The vegetation in the inactive borrow pit should thus be designated gray rabbitbrush/cheatgrass (**Figure 2**), particularly since the current designation provides no information on species composition.

Borrow Area C -- Wildlife. Wildlife utilizing Borrow Area C include mammals, the badger (*Taxidea taxus*), coyote (*Canis latrans*), elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), and northern pocket gopher (*Thomomys talpoides*); birds, the horned lark (*Eremophila alpestris*), lark sparrow (*Chondestes grammacus*), rock wren (*Salpinctes obsoletus*), short-eared owl (*Asio flammeus*), and Western meadowlark (*Sturnella neglecta*); and reptiles, the side-blotched lizard (*Uta stansburiana*).

Borrow Area C – Plant and Wildlife Species of Concern. According to Soll and Soper (1996), there was a rare plant population of an unnamed species located within Borrow Area C. However, its purported location did not correspond to any of the areas searched by TNC during the rare plant surveys it conducted on the ALE Reserve in the 1990s (Evans 2002). Furthermore, this population was not referenced in BRMaP (DOE-RL 2001). The above discrepancy was resolved during these field surveys, during which no rare plant population was observed.

The only plant species of concern observed within the Area C plant communities were purple mat (*Nama densum* var. *parviflorum*), crouching milkvetch (*Astragalus succumbens*), and stalked-pod milkvetch (*Astragalus sclerocarpus*) (**Table 1**). Purple mat is a Washington State Review 1 species (plant taxon of potential concern that is in need of additional field work before a status can be assigned by the Washington Natural Heritage Program [WNHP 2002]). Crouching milkvetch and stalked-pod milkvetch are Washington State Watch List species (plant taxon that is of concern but is considered to be more abundant and/or less threatened in Washington than previously assumed [WNHP 2002]) (Sackschewsky and Downs 2001).

No wildlife species of concern were observed in any of the Borrow Area C plant communities.

Table 1. Borrow Area C plant communities in which purple mat, crouching milkvetch, and/or stalked-pod milkvetch were observed.

Plant Community	Species		
	Crouching milkvetch	Purple mat	Stalked-pod milkvetch

Cheatgrass/needle-and-thread grass/Indian ricegrass	^a	X	X
Needle-and-thread grass/cheatgrass	X		
Sandberg's bluegrass/cheatgrass			
Cheatgrass/Indian ricegrass/Russian thistle			X
Cheatgrass/Sandberg's bluegrass/Jim Hill's tumble mustard	X	X	
Cheatgrass	X		
Cheatgrass/Indian ricegrass	X		
Gray rabbitbrush/cheatgrass			X

^a Blank cells indicate that the species do not occur in the corresponding plant communities.

Stockpile Area and Conveyance Road – Habitats and Wildlife. The stockpile and conveyance road area consisted of mature big sagebrush habitat before the 24 Command fire. The dominant plant species in this area currently are Russian thistle (30%), cheatgrass (15%), and dune scurfpea (*Psoralea lanceolata*) (10%). Wildlife species inhabiting this area include mammals, the black-tailed jackrabbit (*Lepus californicus*) and coyote; and birds, the horned lark, mourning dove (*Zenaida macroura*), Western kingbird (*Tyrannus verticalis*), and Western meadowlark.

Stockpile Area and Conveyance Road – Plant and Wildlife Species of Concern. The only plant species of concern observed within the area identified for the stockpile and conveyance road were purple mat and stalked-pod milkvetch. Only one wildlife species of concern was observed within this area, the black-tailed jackrabbit, a Washington state candidate species (species that the WDFW will review for possible listing as state endangered, threatened, or sensitive [WDFW 2002]).

ERDF -- Habitats and Wildlife. The area comprising the ERDF site before the 24 Command Fire generally consisted of mature sagebrush habitat with varying understory components. The dominant understory component over ~90% of the area was a mix of cheatgrass and Sandberg's bluegrass. The dominant understory component over ~10% of the area was a mix of cheatgrass and needle-and-thread grass (DOE-RL 1995). More specifically, a November-December 1993 survey of sections 4 and 5 of a proposed ERDF rail line revealed that the dominant overstory species in that part of the ERDF was sagebrush at 25% to 50% cover, and the dominant understory species was cheatgrass at 50% to 75% cover (Brandt 1994). Since wildlife species (outside of the loggerhead shrike [*Lanius ludovicianus*], see below) were not noted with respect to individual sections of the ERDF rail line (Brandt 1994), wildlife use of the ERDF cannot be derived from Brandt (1994).

ERDF – Plant and Wildlife Species of Concern. The only plant species of concern observed during the November-December 1993 survey of the proposed ERDF rail line was stalked-pod milkvetch (Brandt 1994). The only evidence of wildlife species of concern observed at that time were inactive loggerhead shrike nests (Brandt 1994), a Washington state candidate species and a Federal species of concern (species whose conservation standing is of concern to the U.S. Fish and Wildlife Service, but for which status information is still needed).

200 West Area

CWC Expansion Area -- Habitats and Wildlife. The CWC expansion area consisted of mature sagebrush habitat before the 24 Command Fire. The dominant plant species in the area currently is

Russian thistle (20%). The coyote and Western meadowlark were only wildlife species observed in the area.

CWC Expansion Area -- Plant and Wildlife Species of Concern. The only plant species of concern observed within the CWC expansion area were purple mat and crouching milkvetch. No wildlife species of concern were observed in the CWC expansion Area.

218-W-5 Expansion Area -- Habitats and Wildlife. The 218-W-5 Expansion Area consisted of mature sagebrush habitat before the 24 Command Fire. The dominant plant species in the area currently are Sandberg's bluegrass (20%), cheatgrass (15%), Indian ricegrass (10%), and Russian thistle (10%). Wildlife species utilizing the 218-W-5 Expansion Area include mammals, the badger, coyote, Great Basin pocket mouse (*Perognathus parvus*), and mule deer; and birds, the horned lark, mourning dove, and Western meadowlark.

218-W-5 Expansion Area -- Plant and Wildlife Species of Concern. The only plant species of concern observed in the 218-W-5 Expansion Area were purple mat, crouching milkvetch, and stalked-pod milkvetch. No wildlife species of concern were observed in the 218-W-5 Expansion Area.

New Waste Processing Facility -- Habitats and Wildlife. The area designated for the new waste processing facility consisted of mature sagebrush habitat before the 24 Command Fire. The dominant plant species in the area currently is bur ragweed (*Ambrosia acanthacarpa*) (10%). Wildlife species utilizing the area designated for the new waste processing facility include the coyote.

New Waste Processing Facility -- Plant and Wildlife Species of Concern. The only plant species of concern observed within the area identified for the new waste processing facility was stalked-pod milkvetch. No wildlife species of concern were observed in this area.

Undeveloped Portion of the 218-W-4C LLBG -- Habitats and Wildlife. The undeveloped southeast portion of the 218-W-4C LLBG is dominated by mature sagebrush (10%) habitat, with gray rabbitbrush (1%) and green rabbitbrush (*Chrysothamnus viscidiflorus*) (<1%) as minor overstory components. The understory consists primarily of needle-and-thread grass (5%). Wildlife species utilizing the undeveloped portion of the 218-W-4C LLBG include the coyote and mountain cottontail (*Sylvilagus nutalli*).

Undeveloped Portion of the 218-W-4C LLBG -- Plant and Wildlife Species of Concern. The only plant species of concern observed within the 218-W-4C LLBG was stalked-pod milkvetch. No wildlife species of concern were observed in this area.

Western Half and Northeastern Corner of the 218-W-6 LLBG -- Habitats and Wildlife. The western half of the 218-W-6 LLBG had not been disturbed until application of herbicides to this portion of the LLBG in late 2001/early 2002 (Sackschewsky 2002a) prior to anticipated mechanical removal of vegetation (Sackschewsky 2002b) for the purpose of fire suppression. The western half of the 218-W-6 LLBG is divided into eastern and western portions because of differences in the plant communities that occupy these areas. In spring 2001 (most recent field survey), overstory vegetation on the eastern portion of the western half of the 218-W-6 LLBG consisted of sagebrush (10%) and spiny hopsage (*Grayia spinosa*) (5%), and understory vegetation consisted of Sandberg's bluegrass (10%) and cheatgrass (40%). Wildlife species utilizing this area included the mule deer and Western meadowlark. In spring 2002,

overstory vegetation on the western portion of the western half of the 218-W-6 LLBG consisted of sagebrush (5%) and gray rabbitbrush (1%), and understory vegetation consisted of Sandberg's bluegrass (25%), Russian thistle (10%), and cheatgrass (5%). Wildlife species utilizing this area included the Western meadowlark. Vegetation on the whole of the western half of 218-W-6 LLBG has since been removed (Sackschewsky 2002b), and this area will continue to receive herbicide applications on a regular basis.

The northeast portion of the eastern half of the 218-W-6 LLBG had not been disturbed until application of herbicides to this portion of the LLBG in late 2001/early 2002 (Sackschewsky 2002a) prior to anticipated mechanical removal of vegetation (Sackschewsky 2002b) for the purpose of fire suppression. In spring 2001 (most recent field survey), overstory vegetation in the area consisted of sagebrush (5%) and spiny hopsage (5%), and understory vegetation consisted of cheatgrass (70%) and Sandberg's bluegrass (5%). No wildlife species were observed utilizing the northeast portion of the eastern half of the 218-W-6 LLBG. Vegetation on the northeast portion of the eastern half of the 218-W-6 LLBG has since been removed (Sackschewsky 2002b), and this area will continue to receive herbicide applications on a regular basis.

Western Half and Northeastern Corner of the 218-W-6 LLBG -- Plant and Wildlife Species of Concern. No plant or wildlife species of concern were observed utilizing either the western half or the northeast portion of the eastern half of the 218-W-6 LLBG prior to vegetation removal in these areas (Sackschewsky 2002b). The eastern portion of the western half and the northeast portion of the eastern half of the 218-W-6 LLBG were not surveyed in 2002. However, since plant/wildlife species of concern were not observed during the 2001 survey (prior to vegetation removal), it is very highly unlikely that any are currently present.

200 East Area

Proposed Disposal Facility near PUREX -- Habitats and Wildlife. Unlike most of the LLBGs, the original vegetation on the site of the proposed disposal facility near the PUREX Plant has not been cleared. The overstory is dominated by sagebrush (25% cover), with green rabbitbrush (<1%) as a minor component. The understory is dominated by cheatgrass (40%) and Sandberg's bluegrass (15%). Wildlife using this area include the following mammals, coyote, black-tailed jackrabbit, mule deer, and northern pocket gopher; and birds, American robin [*Turdus migratorius*], Brewer's blackbird [*Euphagus carolinus*], mourning dove, sage sparrow [*Amphispiza belli*], Western kingbird, Western meadowlark, and white-crowned sparrow [*Zonotrichia leucophrys*].

Proposed Disposal Facility near PUREX -- Plant and Wildlife Species of Concern. No plant species of concern were observed on the site of the proposed disposal facility near PUREX. However, two wildlife species of concern were observed, the black-tailed jackrabbit and sage sparrow. Like the black-tailed jackrabbit, the sage sparrow is a Washington State candidate species.

Considerations and Recommendations:

Threatened and Endangered Species. No plant or animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government as threatened or endangered were observed on or in the vicinity of the surveyed areas.

Element Occurrences/Sagebrush Habitats. The cheatgrass/needle-and-thread grass/Indian ricegrass, needle-and-thread grass/cheatgrass, and Sandberg's bluegrass/cheatgrass communities (**Figure 2**) in Borrow Area C are element occurrences of the bitterbrush/Indian ricegrass sand dune complex, sagebrush/needle-and-thread grass, and the sagebrush/bluebunch wheatgrass community types, respectively. An element occurrence of a community type is one that meets the minimum standards set by the State of Washington Natural Heritage Program (WNHP) for ecological condition, size, and the surrounding landscape. Element occurrences are generally considered to be of significant conservation value from a state and/or regional perspective. More specifically, element occurrences on the Hanford Site may be considered integral to the preservation and sustenance of biodiversity in the Columbia Basin shrub-steppe. Element occurrences are considered Level IV biological resources under the *Hanford Site Biological Resources Management Plan* (BRMaP) (DOE-RL 2001), the highest level of resource designation on the Hanford Site. Level IV resources are those that, because of their federally protected legal status or their regional and national significance, justify preservation as the primary management option. Typically, Level IV resources cannot be mitigated unless it is by compensation via acquisition and protection of in-kind resources (DOE-RL 2001).

Mature sagebrush steppe habitat is a priority habitat in Washington State. The mature sagebrush habitat on the site of the proposed disposal facility near PUREX is thus a Level III resource under BRMaP. Level III resources are those that—because of their state listing, potential for federal or state listing, unique or significant value for plant, fish, or wildlife species, special administrative designation, or environmental sensitivity—require mitigation. When avoidance and minimization are not possible or are insufficient, mitigation via rectification (habitat replacement at the site of disturbance) or compensation (habitat replacement away from the site of disturbance) is recommended (DOE-RL 2001).

The mature sagebrush steppe habitat in the undeveloped portion of the 218-W-4C LLBG is also a Level III resource (DOE-RL 2001). However, this habitat would be subject only to avoidance and minimization, because replacement mitigation (rectification or compensation) is currently not required in this portion of the 200 West Area (DOE-RL 2003).

The widely scattered mature big sagebrush located in the southeastern portion of the cheatgrass/Sandberg's bluegrass/Jim Hill's tumble mustard community (**Figure 2**) and the sagebrush habitat within the gray rabbitbrush/cheatgrass community (**Figure 2**), both in Borrow Area C, are considered Level II resources. Level II resources are those that—to show compliance with procedural and substantive laws such as NEPA, CERCLA, and the Migratory Bird Treaty Act—require consideration of potential adverse impacts. Mitigation is most often accomplished by avoidance and impact minimization, except in the case of recovering shrub-steppe habitat, for which mitigation via rectification or compensation is recommended (DOE-RL 2001).

All other plant communities/habitats in the areas surveyed are considered Level I resources under BRMaP, for which no mitigation is required (DOE-RL 2001).

Disturbance of the above element occurrences/sagebrush habitats would likely not occur for at least another decade. Thus, actual mitigation requirements will depend on the results of field surveys conducted during the growing season just prior to initiating operations, and the mitigation guidelines in effect at Hanford at that time. Consequently, mitigation recommendations are not presented here.

However, for the purpose of comparing the HSW EIS Alternative Groups, Appendix I of that document sets forth what the current mitigation requirements would be, in accordance with the *Hanford Site Biological Resources Mitigation Strategy* (DOE-RL 2003) and BRMaP (DOE-RL 2001), if these element occurrences/sagebrush habitats were to be disturbed in their extant condition.

Plant Species of Concern. Crouching milkvetch (Borrow Area C, CWC Expansion Area, and 218-W-5 Expansion Area) and stalked-pod milkvetch (Borrow Area C, Stockpile Area and Conveyance Road area, 218-W-5 Expansion Area, area designated for the New Waste Processing Facility, and the undeveloped portion of the 218-W-4C LLBG) are Washington State Watch List species and are thus considered Level I resources under BRMaP, for which no mitigation is required. Stalked-pod milkvetch and crouching milkvetch are relatively common on the Central Plateau (Sackschewsky and Downs 2001). Therefore, disturbance of those individuals observed during the surveys of the above areas would not be likely to adversely affect the overall local population.

Purple mat (Borrow Area C, stockpile and conveyance road area, and 218-W-5 Expansion Area) is a Washington State Review 1 species and is thus considered a Level II resource under BRMaP, for which mitigation consists of avoidance and impact minimization. Purple mat occurs occasionally throughout central Hanford (Sackschewsky and Downs 2001). Disturbance of those individuals observed during the surveys of the above areas would not be likely to adversely affect the overall local population.

Wildlife Species of Concern. The black-tailed jackrabbit (area identified for the proposed disposal facility near the PUREX Plant and the stockpile and conveyance road area) and sage sparrow (proposed disposal facility near the PUREX Plant) are Washington State candidate species. The distribution of the black-tailed jackrabbit (Burke Museum of Natural History and Culture 2002) and sage sparrow within Washington is limited mostly to the Columbia Basin. Both species have a strong affinity for sagebrush habitat, particularly the sage sparrow. Removal of sagebrush within the site of the proposed disposal facility near the PUREX Plant would likely have a minimal impact on overall populations of these species within the Columbia Basin.

Migratory Birds. Migratory birds were observed in most of the surveyed areas and could potentially nest in all of the surveyed areas. Ground disturbance during the nesting season, generally March 1 through August 1, could destroy eggs and young and temporarily displace nesting individuals into other areas of the Hanford Site. The nests, eggs, and young of migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703-712, as amended). Protection is generally accomplished by conducting ground-disturbing activities outside the nesting season, generally August 1 through February 28.

Need for Re-survey of all Areas Prior to Initiating Operations. Because plant species assemblages and wildlife use of an area change over time (e.g., adding new species via colonization, loss of species due to competition, etc.), all the areas listed in the title or "Project Description" section of this letter report will need to be surveyed again during the growing season just prior to initiating operations. Mitigation recommendations will be identified based on the guidelines in force on the Hanford Site at that time.

Need for Full Survey of ERDF. The ERDF has never been fully surveyed. A detailed survey will be conducted during the growing season of 2003 for the HSW EIS. The results of this survey and associated considerations/recommendations will be provided in an addendum letter.

Period of Validity for this Letter Report. This Ecological Compliance Review is valid until 15 April 2004.

Sincerely,

Michael R. Sackschewsky
Compliance Manager
Ecological Monitoring and Compliance Project

MRS:jmb

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