from Dave Keller
10/4/05

2090

Table 4–21 Protected and Sensitive Species

Common Name	Scientific Name	Status[a] Federal	Status[a] State	Notes
Plants				
Sapello Canyon larkspur	*Delphinium sapellonis*		SC	
Springer's blazing star	*Mentzelia springeri*		SC	
Wood lily (Mountain lily)	*Lilium philadelphicum L. var. andinum (Nutt.) Ker*		E	Observed on LAC, BNM, and SFNF lands
Yellow lady's slipper orchid	*Cypripedium calceolus L. var. pubescens (Willd.) Correll*		E	Observed on BNM lands
Insects				
New Mexico silverspot butterfly	*Speyeria nokomis nitocris*	SC		
Fish				
Rio Grande chub	*Gila pandora*		S	
Amphibians				
Jemez Mountain salamander	*Plethodon neomexicanus*	SC	T	Permanent resident on LANL, LAC, BBNM, and SFNF lands
Birds				
American peregrine falcon	*Falco peregrinus anatum*	SC, BCC	T	Forages on LANL, nests and forages on adjacent lands
Arctic peregrine falcon	*Falco peregrinus tundrius*	SC, BCC	T	
Bald Eagle		T	T	Observed as a migratory and winter resident along Rio Grande and adjacent LANL lands
Bendire's thrasher	*Toxostoma bendirei*	BCC		
Black-throated gray warbler	*Dendroica nigrescens*	BCC		
Crissal thrasher	*Toxostoma crissale*	BCC		
Peruginous hawk	*Buteo regalis*	BCC		Observed as a breeding resident on LAC, LANL, BNM, and SFNF lands
Flammulated owl	*Otus flammeolus*	BCC		
Gracea's warbler	*Dendroica graciae*	BCC		
Golden eagle	*Aquila chrysaetos*	BCC		
Gray vireo	*Vireo vicinior*	BCC	T	Observed on LAC, BNM, and SFNF lands;
Lewis's woodpecker	*Melanerpes lewis*	BCC		
Loggerhead shrike	*Lanius ludovicianus*		S	Observed on LAC, BNM, and SFNF lands
Mexican spotted owl	*Strix occidentalis lucida*	T	S	Breeding resident on LANL, LAC, BNM, and SFNF lands; critical habitat designated on SFNF lands
Northern goshawk	*Accipiter gentilis*	SC	S	Observed as a breeding resident on LAC, LANL, BNM, and SFNF lands
Northern harrier	*Circus cyaneus*	Cc		
Pinyon jay	*Gymnorhinus cyanocephalus*	Cc		
Prairie falcon	*Falco mexicanus*	Cc		
Sage sparrow	*Amphispiza belli*	Cc		
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	E	Potential presence on LANL and White Rock Canyon, Jemez Mountains, and near Española; potential nesting area on LANL

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Author: 113689
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Date: 10/4/2005 7:15:42 AM
Permanent resident on LANL.

Author: 113689
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Date: 10/4/2005 7:15:52 AM
Permanent resident on LANL.

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Date: 10/4/2005 7:17:30 AM
Breeding parliament resident on LANL.

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Date: 10/4/2005 7:16:11 AM
Permanent resident on LANL.

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Subject: Inserted Text
Date: 10/4/2005 7:17:06 AM
Breeding resident on LANL.

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Date: 10/4/2005 7:16:53 AM
Breeding resident on LANL.

Common Name	Scientific Name	Status[a] Federal	Status[a] State	Notes
Virginia's warbler	*Vermivora virginiae*	Cc		
Williamson's sapsucker	*Sphyrapicus thyroideus*	Cc		
Yellow-billed cuckoo	*Coccyzus americanus*	C, Cc	S	
Mammals				
Big free-tailed bat	*Nyctinomops macrotis*		S	Migratory visitor on LAC, BNM, and SFNF lands
Black-footed ferret	*Mustella nigripes*	E		
Fringed myotis	*Myotis thysanodes*		S	Observed on LANL, BNM, and SFNF lands
Goat Peak pika	*Ochotona princeps nigrescens*	SC	S	Observed on LAC and BNM lands
Long-eared myotis	*Myotis evotis*		S	Summer resident on LANL, BNM, and SFNF lands
Long-legged myotis	*Myotis volans*		S	Summer resident on LANL, LAC, BNM, and SFNF lands
New Mexico meadow jumping mouse	*Zapus hudsonius luteus*	SC	T	Permanent resident on BNM and SFNF lands; overwinters by hibernating
Ringtail	*Bassariscus astutus*		S	
Spotted bat	*Euderma maculatum*		T	Permanent resident on BNM and SFNF lands; seasonal resident on LANL
Townsend's big-eared bat	*Plecotus townsendii*	SC	S	
Western small-footed myotis	*Myotis ciliolabrum*		S	
Yuma myotis	*Myotis yumanensis*		S	Summer resident on LANL, LAC, and SFNF lands

BNM = Bandelier National Monument; LAC = Los Alamos County; LANL = Los Alamos National Laboratory; SFNF = Santa Fe National Forest.

[a] Status:

E=endangered: Federal – in danger of extinction throughout all or a significant portion of its range.
State – Animal: any species or subspecies whose prospects of survival or recruitment in New Mexico are in jeopardy.
– Plant, a taxon listed as threatened or endangered under provision of the Federal Endangered Species Act, or is considered proposed under the tenets of the act, or is a rare plant across its range within the state, and of such limited distribution and population size that unregulated taking could adversely impact it or jeopardize it survival in Mexico.

T=threatened: Federal – likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
State – Animal, any species or subspecies that is likely to become endangered within the foreseeable future throughout all of a significant portion of its range in New Mexico.
– Plant, New Mexico does not list plants as threatened.

C=candidate: substantial information exists in USFWS files on biological vulnerability to support proposal to list as endangered or threatened.

Cc=conservation concern: migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act.

S=sensitive: those taxa that, in the opinion of a qualified New Mexico Department of Game and Fish biologist, deserve special consideration in management and planning, and are not listed as threatened or endangered by the State of New Mexico.

SC=species of concern:
Federal – conservation standing is of concern, but status information is still needed; they do not receive recognition under the Endangered Species Act.
State – a New Mexico plant species, which should be protected from land use impacts when possible because it is a unique and limited component of the regional floral.

Sources: LANL 2004e:4-106-4-109; NMNHP 2004; NMSF 2004; NMDGF 2004a and 2004b; USFWS 2002:39, 2004a, 2004b; NMAC 19.21.2.

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Author: 113689
Subject: Inserted Text
Date: 10/4/2005 7:17:55 AM
Breeding resident on LANL.

Author: 113689
Subject: Inserted Text
Date: 10/4/2005 7:17:58 AM
Breeding resident on LANL.

Author: 113689
Subject: Inserted Text
Date: 10/4/2005 7:18:31 AM
Resident along the Rio Grande, adjacent to LANL.

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Breeding resident on LAC

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Date: 10/4/2005 7:19:36 AM
Breeding resident on LANL

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Breeding resident on LANL

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Date: 10/4/2005 7:22:30 AM
Breeding resident on LANL

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Date: 10/4/2005 7:21:52 AM
Observed on LAC lands.

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Date: 10/4/2005 7:20:27 AM
Seasonal resident on BNM and SFNF lands; seasonal resident on LANL

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Date: 10/4/2005 7:20:56 AM
Seasonal resident on LANL

Comments from page 84 continued on next page

Common Name	Scientific Name	Status [a]		Notes
		Federal	State	
Virginia's warbler	*Vermivora virginiae*	Cc		
Williamson's sapsucker	*Sphyrapicus thyroideus*	Cc		
Yellow-billed cuckoo	*Coccyzus americanus*	C, Cc	S	
Mammals				
Big free-tailed bat	*Nyctinomops macrotis*		S	Migratory visitor on LAC, BNM, and SFNF lands
Black-footed ferret	*Mustella nigripes*	E		
Fringed myotis	*Myotis thysanodes*		S	Observed on LANL, BNM, and SFNF lands
Goat Peak pika	*Ochotona princeps nigrescens*	SC	S	Observed on LAC and BNM lands
Long-eared myotis	*Myotis evotis*		S	Summer resident on LANL, BNM, and SFNF lands
Long-legged myotis	*Myotis volans*		S	Summer resident on LANL, LAC, BNM, and SFNF lands
New Mexico meadow jumping mouse	*Zapus hudsonius luteus*	SC	T	Permanent resident on BNM and SFNF lands; overwinters by hibernating
Ringtail	*Bassariscus astutus*		S	
Spotted bat	*Euderma maculatum*		T	Permanent resident on BNM and SFNF lands; seasonal resident on LANL
Townsend's big-eared bat	*Plecotus townsendii*	SC	S	
Western small-footed myotis	*Myotis ciliolabrum*		S	
Yuma myotis	*Myotis yumanensis*		S	Summer resident on LANL, LAC, and SFNF lands

BNM = Bandelier National Monument; LAC = Los Alamos County; LANL = Los Alamos National Laboratory; SFNF = Santa Fe National Forest.

[a] Status:

E=endangered: Federal – in danger of extinction throughout all or a significant portion of its range.
State – Animal: any species or subspecies whose prospects of survival or recruitment in New Mexico are in jeopardy.
– Plant, a taxon listed as threatened or endangered under provision of the Federal Endangered Species Act, or is considered proposed under the tenets of the act, or is a rare plant across its range within the state, and of such limited distribution and population size that unregulated taking could adversely impact it an jeopardize it survival in Mexico.

T=threatened: Federal – likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
State – Animal, any species or subspecies that is likely to become endangered within the foreseeable future throughout all of a significant portion of its range in New Mexico.
– Plant, New Mexico does not list plants as threatened.

C=candidate: substantial information exists in USFWS files on biological vulnerability to support proposals to list as endangered or threatened.

Cc=conservation concern: migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act.

S=sensitive: those taxa that, in the opinion of a qualified New Mexico Department of Game and Fish biologist, deserve special consideration in management and planning, and are not listed as threatened or endangered by the State of New Mexico.

SC=species of concern:
Federal – conservation standing is of concern, but status information is still needed; they do not receive recognition under the Endangered Species Act.
State – a New Mexico plant species, which should be protected from land use impacts when possible because it is a unique and limited component of the regional floral.

Sources: **LANL 2004e:4-106-4-109; NMNHP 2004; NMSF 2004; NMDGF 2004a and 2004b; USFWS 2002:39, 2004a, 2004b; NMAC 19.21.2.**

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Seasonal resident on LANL.

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Seasonal resident on LANL.

A brief summary discussion of the federal and state endangered and threatened species is provided below. The reader is referred to the *LANL SWEIS* for more detailed information on these and other species presented in Table 4–21 (**DOE 1999a:4-111-4-117**). DOE and LANL coordinate with the New Mexico Department of Game and Fish and the U.S. Fish and Wildlife Service (USFWS) to locate and conserve protected and sensitive species.

The wood lily and yellow lady's slipper orchid are both listed as endangered in New Mexico. The former grows in ponderosa pine, mixed-conifer, and spruce-fir forests and requires riparian areas. This plant has been observed on Los Alamos County, BNM, and Santa Fe National Forest lands. Yellow lady's slipper orchid, which grows in mixed-conifer forests, also requires riparian areas with moist soil conditions. It has been observed within the BNM (**DOE 1999a:4-116**).

The southwestern willow flycatcher (federally and state-listed as endangered) occurs in riparian habitats along rivers, streams, or other wetlands. A ~~possible~~ migrant flycatcher was located on LANL during May 1997. Potential suitable nesting habitat is present on LANL but is limited. This species has been observed at higher elevations in the Jemez Mountains west of LANL and at lower elevations along the Rio Grande in the vicinity of Española (**DOE 1999a:4-113**).

The black-footed ferret, which is listed as endangered by the USFWS, was last reported in New Mexico in 1934. This species, which requires greater than 80 acres (32 hectares) of prairie dog towns, has a low potential of occurrence on LANL since no large towns occur on the site (**Keller and Koch 2001:10, 11**).

The Jemez Mountain salamander is listed as threatened in New Mexico. It can be found in mixed-conifer forests and requires north-facing moist slopes. It is a permanent resident on LANL and is also found in Los Alamos County, BNM and Santa Fe National Forest (**DOE 1999a:4-113**).

Two federally threatened birds, the bald eagle and Mexican spotted owl, are found in the LANL region. State-listed threatened birds found in the area include the peregrine falcon (both subspecies), bald eagle, and gray vireo. The bald eagle has been observed as a migratory and winter resident along the Rio Grande and on adjacent LANL lands. The Mexican spotted owl prefers tall, old-growth forest in canyons and moist areas for breeding. It is found in mixed conifer and ponderosa forests and is a breeding resident on LANL, Los Alamos County, BNM, and Santa Fe National Forest (**DOE 1999a:4-113**). Following the Cerro Grande Fire, no evidence of Mexican spotted owl activity was observed in LANL. However, as conditions recovered, activity has increased with a nested pair being reported from the north central part of the site and three juveniles from the southern portion of the site (Shaw Environmental 2004:7, SAIC 2005). Critical habitat has been designated within the national forest. The peregrine falcon, which requires cliffs for nesting, has been found within juniper savannah and piñon-juniper, ponderosa pine, and mixed-conifer forests. It forages on LANL and nests and forages on adjacent lands. The gray vireo uses riparian areas in juniper savannah and piñon-juniper forests. It has been observed within Los Alamos County, BNM, and Santa Fe National Forest (**DOE 1999a:4-113, 4-116**).

Two state-threatened mammals have been found in the LANL area. These include the New Mexico meadow jumping mouse and spotted bat. The former is found in mixed-conifer and

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willow

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The willow flycatchers discovered on LANL can'not be confirmed to be the Southwestern race of the willow flycatcher.

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spruce-fir forests and requires riparian areas. It is a permanent resident on Los Alamos County and Santa Fe National Forest lands. The spotted bat is found in piñon-juniper woodland, ponderosa pine forest, and spruce-fir forest. It roosts in cliffs near water. This species is a permanent resident on BNM and Santa Fe National Forest; it is a seasonal resident on LANL (**DOE 1999a:4-114**).

Habitat that is either occupied by Federally-protected species or that is potentially suitable for use by these species in the future has been delineated within LANL. The *Los Alamos Threatened and Endangered Species Habitat Management Plan*, implemented in 1998, identifies areas of environmental interest (AEI) for various federally-listed threatened or endangered species. In general, an AEI consists of a core area that contains important breeding or wintering habitat for a specific species and a buffer area around the core area. The buffer protects the core area from disturbances that would degrade its value. AEIs have been established for the Mexican spotted owl, bald eagle, and southwestern willow flycatcher (**LANL 1998d**). Recently, changes in the AEI boundaries for the Mexican Spotted Owl within Sandia/Mortanded Canyon, Los Alamos Canyon, and Water/Canon de Valle have been proposed. These changes, which were made in response to implementation of a new habitat model would result in a reduced size of the AEIs (**Radzinski 2005**). AEIs have not been established for the black-footed ferret since suitable habitat for this species does not occur at LANL (**NNSA 2003:3-39**).

The Cerro Grande Fire did not severely burn any of the AEIs on LANL, although many of the Mexican spotted owl AEIs received moderate- and low-severity burns. Habitat within the southwestern willow flycatcher AEI and bald eagle AEI did not burn (**DOE 2000b:5-20**). There is no evidence that the fire caused a long-term change to the overall number of federally listed threatened or endangered species inhabiting the region. LANL's species of greatest concern, the Mexican spotted owl, resumed normal breeding activities in ~~2001 and 2002~~. Some state-listed species, including the Jemez Mountain salamander, have undoubtedly been less fortunate (**LANL 2003a:3-38**).

As noted above (see **Section 4.1.1**), 2,951.12 acres (1,194.29 hectares) have been conveyed to Los Alamos County and transferred to the Pueblo of San Ildefonso. Some of the areas that have been turned over to these two entities have AEIs for both the Mexican spotted owl and peregrine falcon. However, the *LANL Threatened and Endangered Species Habitat Management Plan*, under which the AEIs are designated, is no longer in effect on conveyed or transferred land. Although none of the land has been developed to date, future development could result in the modification of habitat for protected and sensitive species (**DOE 1999b:2-12**).

4.5.5 Biodiversity

Biodiversity is a new and more explicit expression of one of the fundamental concepts of ecology, popularly stated as "everything is connected to everything else." The major human-caused disturbance factors, which are addressed in detail in the *LANL SWEIS* (**DOE 1999a:4-119 - 4-122**) and identified by the Council on Environmental Quality as responsible for the decline in biodiversity at multiple scales, including global, regional, and site-specific scales, are the following:

- Physical alteration of the landscape,

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Since 2004 an additional Mexican spotted owl territory was found to be occupied on LANL.

In 2005 one of the two occupied territories were confirmed to have fledged three young.

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since the Cerro Grande fire in 2001.

contain species such as mule deer, raccoons, and numerous song birds (**DOE 1999:4-101**). Only the southeastern corner of TA-3 was burned by the Cerro Grande Fire. This area was burned at a low/unburned severity (**LANL 2000a:3-10**). There are no wetlands or aquatic resources within developed portions of TA-3 or within the undeveloped western portion of the area, although wetlands are located to the east in Sandia and Mortandad Canyons. ~~TA-3 does not fall within any of the Areas of Environmental Interest (AEIs) that have been delineated to protect the Mexican spotted owl,~~ southwestern willow flycatcher, and bald eagle (**LANL 2000b; Radzinski 2005**).

G.2.3.6 Cultural Resources

Cultural resources are human imprints on the landscape and are defined and protected by a series of Federal laws, regulations, and guidelines. The three general categories of cultural resources addressed in this section are prehistoric, historic, and traditional cultural properties (TPCs).

Prehistoric and Historic Resources

A total of 8 prehistoric and historic cultural resource site have been located within TA-3. Of these sites, 3 are prehistoric and 5 are historic. Prehistoric sites are limited to lithic scatters, while historic resources include trails and/or stairs and a wagon road. Two of the prehistoric sites are considered eligible for listing on the National Register of Historic Places (NRHPs) and one has been determined to be ineligible. Of the historic sites one is eligible for listing, one is ineligible, and 3 are of unknown eligibility. One of the prehistoric lithic scatters is located within the general area of the proposed Replacement Office Building Complex; however, this site has been determined to be ineligible for listing on the NRHP. Additionally, a historic trail and/or stairs are also located in the vicinity of the project. The eligibility of this site has not been determined.

Traditional Cultural Properties

TCPs are properties that are eligible for the NHRP because of their association with cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining its cultural identity. Consultations to identify TCPs were conduction with 19 Native American tribes and two Hispanic communities in connection with the preparation of the LANL SWEIS (**DOE 1999**) (**see Section 4.8.3**). As noted in **Section 4.8.3**, TCPs are present throughout LANL and adjacent lands; however, specific features or locations are not identified in order to protect such sites (**Knight and Masse 2001**). Thus, a specific listing of TCPs present within or near the proposed for the Replacement Office Building Complex is not available.

G.2.3.7 Infrastructure

LANL utility and transportation infrastructure is described in Section 4.9.2 of the SWEIS and relevant information is summarized below.

Electricity – Electrical service at LANL includes DOE ownership of a 115-kilovolt power transmission line from the Norton substation, a steam/power plant at TA-3 used on an as-needed basis.

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TA-3 does fall within the Areas of Environmental Interest (AEIs) that have been delineated to protect the Mexican spotted owl on its northern reaches.

from Dave Keller

TA-3. Modeling of construction considered particulate emissions from activity in the construction area and emissions from various earthmoving and material-handling equipment.

Noise – Construction of new office facilities at TA-3 and demolition of the Wellness Center and Warehouse would result in some temporary increase in noise levels from construction equipment and activities. Some disturbance of wildlife near to the area may occur as a result of operation of construction equipment. There would be no change in noise impacts on the public outside of LANL as a result of construction and demolition activities, except for a small increase in traffic noise levels from construction employees' vehicles and materials shipment. Noise sources associated with construction at TA-3 are not expected to include loud impulsive sources such as from blasting.

Operations Impacts

Air Quality – Operation of the Replacement Office Buildings at TA-3 would not result in an increase of criteria pollutant emissions above the existing level. This is due to the assumption that the total number of employee trips to LANL would remain the same.

Noise – Noise impacts from operation of the new office complex at TA-3 are expected to be similar to those from overall existing operations at TA-3. Although there would be a small change in traffic and equipment noise, for example new heating and cooling systems, near the area, there would be little change in noise impacts on wildlife and no change in noise impacts on the public outside of LANL as a result of operating these new structures.

G.2.4.2.5 Ecological Resources

Terrestrial Resources

Construction Impacts – Construction of the Replacement Office Building Complex would involve the clearing and grading of 13 acres (5.3 hectares) of mixed conifer forest within TA-3. This would result in the loss of less mobile wildlife such as reptiles and small mammals, and cause more mobile species, such as birds or large mammals, to be displaced. The success of displaced animals would depend on the carrying capacity of the area into which they moved. If the area were at its carrying capacity, displaced animals would not be likely to survive. Indirect impacts from construction, such as noise or human disturbance, could also impact wildlife living adjacent to the construction zone. Such disturbance would span the construction period. These impacts could be mitigated by clearly marking the construction zone to prevent equipment and workers from disturbing adjacent habitat and properly maintaining equipment. Construction of the new buildings and parking lot would not impact wetlands since none are located in or near the construction zone. ~~Impacts to the Mexican spotted owl, southeastern willow flycatcher, and bald eagle would not be expected since the work area does not fall within AEIs for any of these species.~~

Operation Impacts – Operation of the Replacement Office Building Complex would be expected to have minimal impact on terrestrial resources within or adjacent to TA-3. Since wildlife residing in the area has already adapted to levels of noise and human activity associated with current operation, it is unlikely that it would be adversely affected by similar types of activity

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Author: 113689
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Depending on the location in TA-3, Mexican spotted owl habitat could be impacted.

H.5.8.5 Ecological Resources

No Action

Current ecological impacts would remain unchanged. Waste management activities would remain in developed areas of LANL.

Alternative 1

Under this alternative all actions within TA-54, including new construction and removal of the white domes, would take place within developed areas. Thus, there would be little to no impact on ecological resources. Further, the TA does not fall within AEIs for the Mexican spotted owl, southwestern willow flycatcher, or bald eagle.

If the TRU Waste Processing Facility were placed within the Atlas Building at TA-35 or co-located with RANT in TA-54, there would be no impact on ecological resources. Similarly, if constructed north of Pajarito Road the 0.75-acre (0.3-hectare) facility would have little impact on ecological resources since it would be constructed in a built up area. If built south of the road, the new facility would be placed within an open field. While this would not result in the loss of native habitat, reptiles, small mammals, and some birds could be displaced. During construction, noise and human presence could disturb animals living in adjacent areas. Such disturbance would be temporary and could be mitigated by keeping workers within the designated construction zone and properly maintaining equipment. Impacts to wetlands and aquatic resources would not be expected within TA-50. Operation of the TRU Waste Processing Facility would not impact ecological resources.

As noted in Section H.5.7.5, portions of TA-50 fall within the Sandia-Mortandad Canyon and Pajarito Canyon Mexican spotted owl AEIs. All potential sites for the TWPF are located within the buffer zone of the AEIs, although those located north of Pajarito Road are within developed areas. While direct impacts would not be expected, construction has the potential to disturb the spotted owl due to excess noise or light. If construction were to take place during the breeding season (March 1 through August 31) owls could be disturbed and surveys would need to be undertaken to determine if they were present or not. If none were found there would be no restrictions on construction activities. However, if they were present restrictions could be implemented to ensure that noise and lighting limits were met. AEIs for the bald eagle and southwestern willow flycatcher do not include any part of TA-50; thus, these species also would not be adversely affected by the new facility.

Alternative 2

Impacts to ecological resources under Alternative 2 would be similar to those described for the Alternative 1 since similar actions would be taken within the same TAs. Providing additional storage space for legacy TRU waste using two new buildings would not result in a meaningful change to these impacts, although the land requirement would be approximately 2.25 acres (0.9 hectare). The new storage areas would not adversely affect ecological resources since they would be located adjacent to existing facilities.

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Author: 113689
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TA-54 is directly adjacent to the Southwestern willow flycatcher AEI in Pajarito Canyon and storm water actions associated with Area G work could impact the willow flycatcher habitat.

Dave Keller
10/[illegible]/05

Establishment of Radiographic Capabilities in TA-55 Impacts Assessment. This impacts assessment, included in Appendix G of this SWEIS, evaluates the impacts of locating a radiography facility in TA-55 to serve pit production and surveillance programs needs. This project would result in a minor increase in the number of personnel in TA-55.

Radiological Sciences Complex Impacts Assessment. This impacts assessment, included in Appendix G of this SWEIS, evaluates the environmental consequences of consolidating radiochemistry and other related activities into a complex in TA-48. Currently the functions to be consolidated are distributed among a number of facilities in multiple TAs including the Sigma Complex and the radiological machine shops in TA-3, the Pajarito Site in TA-18, the Radiochemistry Laboratory in TA-48, and other facilities in TAs-35, 46, and 59. This consolidation would result in demolition of old and construction of new facilities in TA-48 and an increase in the number of personnel in TA-48.

I.1.2 Project Description and Alternatives

This section describes the alternatives included in this impacts assessment and provides a description of the proposed project. The two alternatives identified for the West Pajarito Corridor Security-Driven Transportation Modifications are the No Action (Alternative 1) and the proposed action to construction and operation of the Security-Driven Transportation Modifications (Alternative 2). If the proposed action were implemented, there are two optional augmentations to the project that could be implemented. Option A involves the construction of a two-lane bridge crossing between TA-35 and Sigma Mesa (in TA-60) with a new road proceeding west through TA-60 toward TA-3. Option B involves a two-lane bridge crossing between TA-60 and TA-61 with a new road proceeding northward to East Jemez Road.

I.1.2.1 Alternative 1: No Action

Under this alternative, no action would be taken to change the current physical control of personally-owned vehicles into the TAs along the Western Pajarito Corridor. Upgrades aimed at addressing the increased and changing needs for physical protection around facilities in TA-35, TA-48, TA-50, and TA-55 would not be undertaken. Vehicular traffic would continue to be screened at the existing guard control stations located at the end of Pajarito Road near Diamond Drive and near Route 4. Staff and visitors with DOE-issued security badges would continue to traverse Pajarito Road and be able to drive vehicles into the proximity of the facilities in TA-35, TA-48, TA-50, and TA-55.

I.1.2.2 Alternative 2: Construction Security-Driven Transportation Modifications in the West Pajarito Corridor (Proposed Action)

Under the Proposed Action, a comprehensive planned approach would be implemented to upgrade and enhance security in the West Pajarito Corridor area. This would include closing Pajarito Road to through traffic at and between TA-48 and TA-63. Surface parking lots would be constructed at these two termini. Provision would be provided at these two parking lots for incoming commuter buses. Within this secure project area, a shuttle bus system would be deployed; this would necessitate the modification of some existing roads as well as the construction of some new roads. Retaining walls and security barriers would be constructed, as

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This option would impact a known location of the Mexican spotted owl and would need an independent formal consultation with the US Fish and Wildlife service.

needed to provide physical separation of the security-controlled portion of the Western Pajarito Corridor from the parking areas and other roadways. A pedestrian pathway system also would be provided in this secure area. Shelters and related amenities (e.g., benches, bike racks, lighting, landscaping, etc.) would be provided at various locations within the project area. Finally, both a pedestrian crossing and a vehicular crossing would be constructed between TA-63 and TA-35.

I.1.2.2.1 Option A: Construct a Bridge from TA-35 to Sigma Mesa and a Road towards TA-3

Under this option, a two-lane bridge would be constructed across Mortandad Canyon from TA-35 to Sigma Mesa (in TA-60). On Sigma Mesa, a new paved two-lane road would be constructed from the bridge along the path of an existing unpaved road that runs west towards TA-3. The new paved road would meet with an existing paved road located in the western portion of TA-60 that continues into TA-3. This canyon crossing and road would provide a replacement route when Pajarito Road is closed for through traffic that currently uses Pajarito Road to travel between White Rock and TA-03.

I.1.2.2.2 Option B: Construct a Bridge from Sigma Mesa to TA-61 and a Road to Connect with East Jemez Road

Under this option, a two-lane bridge would be constructed across Sandia Canyon from Sigma Mesa to TA-61. In TA-61, a paved two-lane road would be built from the bridge northward to East Jemez Road. In conjunction with Option A, this would allow traffic to travel between White Rock and TA-03 or the Los Alamos townsite once Pajarito Road is closed to personally-owned vehicles.

I.1.2.3 Project Description

Provided below is description of the proposed action. The first subsection addresses proposed improvements west of TA-55 while the second subsection addresses proposed improvements east of TA-55.

I.1.2.3.1 West Pajarito Transit-Based Concept

The West Pajarito transit-based concept would create two large park-and-ride locations, one at TA-48 and the other at TA-63, with a shuttle transit system running between transporting people to all the facility areas in TAs-35, 48, 50, and 55.

During peak transit hours in the morning and afternoon, the shuttles would operate on intervals of two-to-five minutes. During non-peak hours of operation in the area, the shuttle intervals would be fifteen to thirty minutes. Proposed routes for the shuttle system are as follows:

- a route originating from the TA-48 parking area circulating to TA-55, TA-50 and TA-35;
- a route originating from the TA-63 parking area circulating to TA-55, TA-50 and TA-35; and
- a loop between TA-48 and TA-63.

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This option would impact a known location of the Mexican spotted owl and would need an independent formal consultation with the US Fish and Wildlife service. A "take" would be the most likely outcome of this action.

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This option would impact a known location of the Mexican spotted owl and would need an independent formal consultation with the US Fish and Wildlife service.

I.1.3 Affected Environment

The affected environment descriptions in this section provide the context for understanding the environmental consequences described in **Section I.1.4.** They serve as a baseline from which any environmental changes brought about by implementing the proposed action can be evaluated; the baseline conditions are the currently existing conditions. For the construction and operation of the Security-Driven Transportation Modifications the affected environment is primarily TA-35, TA-48 and TA-63. For the options that extend the roadways across to other mesas, the affected environment includes TA-60 and TA-61.

The analysis of environmental consequences relies heavily on the affected environment descriptions in **Chapter 4** of the *SWEIS*. Where information specific to the Security-Driven Transportation Modifications and the affected TAs is available and adds to the understanding of the affected environment, it is included here. For socioeconomics, human health, and environmental justice, the discussion in **Chapter 4** of the SWEIS contains all information needed for the baseline affected environment, and those sections are not repeated here.

I.1.3.1 Land Resources

Land resources include land use and visual resources. Land use is defined as, "The way land is developed and used in terms of the kinds of anthropogenic activities that occur (i.e., agriculture, residential areas, industrial areas)" **(EPA 2003a:12).** Visual resources are natural and manmade features that give a particular landscape its character and aesthetic quality. Landscape character is determined by the visual elements of form, line, color, and texture. All four elements are present in every landscape **(BLM 1986a).**

I.1.3.1.1 Land Use

The following paragraphs focus on land use of the areas that would be affected by the proposed action and the options. The proposed action would take place on lands in the West Pajarito Corridor. Option A would involve lands in TA-35 and TA-60, and Option B would involve lands in TA-60 and TA-61.

West Pajarito Corridor – The Pajarito Corridor West Planning Area (West Pajarito Corridor) is located between Mortandad Canyon on the north and Twomile and Pajarito Canyons on the south and is immediately southeast of TA-3. It includes TAs-35, -48, -50, -52, -55, -63, -64, and -66, and totals 831 acres (336 hectares). Activities carried out within the Corridor include: nuclear safeguards and chemical processes research and development; theoretical and computational programs related to nuclear reactor performance; research and applications in chemical and metallurgical processes relating to plutonium; and industrial partnership activities. Among the goals for the West Pajarito Corridor are a number related to transportation flow along the mesa and developing a pedestrian campus environment **(LANL 2001a:82).** Existing land use within the West Pajarito Corridor varies by TA with all TAs including at least some areas designated Reserve. **Table I–1** identifies the present and future land use within each TA that makes up the Corridor, as well as development designations as set forth in the Comprehensive Site Plan for 2001 **(LANL 2001a).** Current land use categories are depicted in Chapter 4, Figure 4–2, of this EIS.

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All of the major road and bridge options would impact a known location of the Mexican spotted owl and would need an independent formal consultation with the US Fish and Wildlife service. A "take" would most likely be needed

associated with drainages. An example of such a wetland exists at the northern edge of the developed portion of TA-48. Cattails are a common plant in site wetlands (**John Isaacson email 2005a:TA-48 EID, Att. 4:figure and Att 32**).

Technical Area-60/Technical Area-61 –The largest contiguous wetland on LANL, the Sandia wetland, is located in Sandia Canyon. It borders both TA-60 and TA-61. This area, which has been identified by the National Wetlands Inventory as "persistent, artificially flooded, palustrine wetland," is dominated by cattails. In 2000, it encompassed 3.5 acres (1.4 hectares); however, this represented a 48 percent reduction in size from 1996 (**Bennett, Keller, and Robinson 2001a:1, 3, 7**).

I.1.3.5.3 Aquatic Resources

As noted in **Section 4.5.3**, although there are reaches of perennial streams on LANL, including within Sandia Canyon, no fish species have been found on the site (**DOE 1999a:4-46, 4-97**).

I.1.3.5.4 Protected and Sensitive Species

West Pajarito Corridor – The West Pajarito Corridor falls within portions of the Sandia-Mortandad Canyon, Pajarito Canyon, and Three-Mile Canyon Mexican spotted owl AEIs (LANL 2000b; Radzinski 2005a). Specifically, parts of TAs-48, -35, and -52 are within the core zone for the Sandia-Mortandad Canyon AEI, while portions of TAs-55, -50, -63, and -66 are included in the core zone of the Pajarito Canyon AEI. No part of the Corridor is within the core zone of the Three-Mile Canyon AEI. Since buffer zones extend beyond the core zone, they encompass additional land within the West Pajarito Corridor. In fact, with the exception of the western portions of TA-48 and TA-64, as well as a very small section of TA-55, nearly the entire Corridor falls within the buffer and core zones of the three AEIs. No portion of the West Pajarito Corridor is within AEIs for the bald eagle or southwestern willow flycatcher.

~~Following the Cerro Grande Fire no evidence of Mexican spotted owl activity was observed on LANL.~~ However, as conditions recovered, owl activity has increased with a nested pair being reported in the Sandia-Mortandad Canyon AEI in 2004 and 3 juveniles being identified in the southern part of the site in 2005 (**Environmental, Inc. 2004a:7; SAIC 2005a**). The presence of this species within an AEI requires certain actions be taken to avoid disturbance. These actions are addressed in **Section I.1.4.2.5**.

Technical Area-60 – TA-60 falls within the Sandia-Mortandad Canyon and Los Alamos Canyon Mexican spotted owl AEIs (**Radzinski 2005a**). Most of the eastern portion of the TA falls within either the core or buffer zone of the Sandia-Mortandad Canyon AEI, while only the very northern border of the TA is within the buffer zone of the Los Alamos Canyon AEI. As noted above, a nested pair of Mexican spotted owls has been identified within the Sandia-Mortandad Canyon AEI. No portion of TA-60 falls within AEIs for the bald eagle or southwestern willow flycatcher.

Technical Area-61 – As is the case for TA-60, TA-61 falls within the Sandia-Mortandad Canyon and Los Alamos Canyon Mexican spotted owl AEIs (**Radzinski 2005a**). The southeastern portion of the TA is within the core zone of the Sandia-Mortandad Canyon AEI, while the northern edge is within the core zone of the Los Alamos Canyon AEI. The rest of the TA is

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~~Mexican spotted owls were detected with weeks of the Cerro Grande fire being extinguished and in all substituent breeding season.~~ However, successful breeding was not confirmed until 2005.

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Disturbances with in the west Pajarito Corridor area in the canyon areas will require significant consultation with the US Fish and Wildlife Service.

Operation of these facilities would result in some change in noise levels along the new roadways and bus routes under both options. Some disturbance of wildlife near to the area may occur.

I.1.4.2.5 Ecological Resources

Although the West Pajarito Corridor falls within the Ponderosa Pine vegetation zone, the area is highly developed, especially on the mesa. Most actions associated with implementing the security-driven transportation modifications project would have little or no impact on ecological resources; however, the construction of the two parking lots, a portion of the new road across TA-63, and the vehicle and pedestrian bridges over the branch of Mortandad Canyon would affect undeveloped forest and open land. Other project elements would largely take place in currently developed portions of the Corridor.

Construction of the two parking lots would disturb a total of approximately 30 ac. (12.2 ha.). The parking lot at TA-48 would total approximately 11 ac. (4.5 ha.) and consists of open field and ponderosa pine forest. The parking lot at TA-63 would total approximately 19 ac. (7.7 ha) and consists of open field and junipers. Both habitats would be lost due to construction of the parking lots as well as a portion of the road around the eastern edge of TA-63. The pedestrian and vehicle bridges connecting TA-63 with TA-35 would involve some loss of habitat for approaches and pier foundations. Clearing and grading for these projects would result in the loss of less mobile animals such as small mammals and reptiles. In general, more mobile species would be able to avoid the area during the construction period; however, depending upon the season, nests and young could be destroyed. Indirect impacts to wildlife could also result from equipment noise. During operation, noise and added human presence could cause some species to avoid nearby areas; however, considering the present level of human presence within the Corridor it would be expected that many species have already adapted. Considering the fact that aquatic resources are not present on the mesa, impacts to these resources would not occur.

As noted in **Section I.1.3.5.4**, portions of the West Pajarito Corridor are within the Sandia-Mortandad, Pajarito Canyon, and Three-Mile Canyon Areas of Environmental Interest (AEIs) for the Mexican spotted owl. Although the parking lot in TA-63, the road across the eastern edge of TA-63, and the pedestrian and vehicle bridges fall within AEI buffer zones, none of these areas are within core zones. ~~Thus, direct impacts to the Mexican spotted owl are unlikely to occur.~~ However, construction has the potential to disturb the owl due to excess noise or light. If construction were to take place during the breeding season (March 1 through August 31) owls could be disturbed and surveys would need to be undertaken to determine if they were present or not. If none were found there would be no restrictions on construction activities. However, if they were present restrictions could be implemented to ensure that noise and lighting limits were met (LANL 2000a).

I.1.4.2.6 Human Health

Under this alternative there would be no change in practices or procedures associated with radiation exposure or the chemical environment, and, therefore, there would be no impact on human health from these potential exposures within the West Pajarito Corridor. As the proposed action fully considers and incorporates emergency preparedness practices and procedures, it is not anticipated that there would be an impact associated with the proposed action within the

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~~Direct impacts to the Mexican spotted owl are likely to occur with the extensive nature of the roads, bridges and parking lots in the TA-55 area.~~