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Title: **Migratory Bird Best Management Practices Source Document for Los Alamos National Laboratory, Revised November 2011**

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Cover photo: The Swainson's hawk (*Buteo swainsoni*) migrates over 6,000 miles every spring and fall between its North American breeding grounds and South American wintering grounds. It is threatened by habitat destruction, a reduction in its prey, and pesticide use.
Photo: Karen Hollingsworth

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I. INTRODUCTION

The Migratory Bird Treat Act of 1918 (MBTA) is the main driver for protection of migratory birds in the U.S. The original 1918 statute implemented the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the U.S. and Mexico, the U.S. and Japan, and the U.S. and the Soviet Union (now Russia). See Appendix 1 for a listing of primary international conventions and domestic legislation for migratory birds.

DEFINITION OF MIGRATORY BIRDS

In the biological sense, a migratory bird is a bird that has a seasonal and somewhat predictable pattern of movement. For the sake of the MBTA, migratory birds are defined as all species covered by the four bilateral treaties. Generally, this includes all native birds in the U.S., except those non-migratory species such as quail and turkey that are managed by individual states. Appendix 2 lists all of the species not protected under the MBTA.

PROHIBITIONS UNDER THE MIGRATORY BIRD TREATY ACT

Under the provisions of the MBTA, it is unlawful "by any means or manner to pursue, hunt, take, capture [or] kill" any migratory birds except as permitted by regulations issued by the U.S. Fish and Wildlife Service (USFWS). The term "take" is not defined in the MBTA, but the USFWS has defined it by regulation to mean to "pursue, hunt, shoot, wound, kill, trap, capture, or collect" any migratory bird or any part, nest, or egg of any migratory bird covered by the conventions, or to attempt those activities.

The USFWS has developed a system of permits for specific types of activities that involve the take of migratory birds, including those governing scientific collection and bird banding, and lethal and non-lethal measures taken to prevent depredation of agricultural crops and to protect public health and safety. Existing migratory bird permit regulations do not authorize take resulting from activities such as forestry or agricultural operations, construction or operation of power lines, and other activities where an otherwise legal action might reasonably be expected to take migratory birds, but is not the intended purpose of the action. Birds that are trapped in buildings may be humanely captured, but must be immediately released into the wild, or, if injured, transported to a permitted rehabilitator.

Under the provisions of the MBTA, the unauthorized take of migratory birds is a strict liability criminal offense that does not require knowledge or specific intent on the part of the offender. As such, even when engaged in an otherwise legal activity where the intent is not to kill or injure migratory birds, violations can occur if bird death or injury results.

The USFWS has enforced the MBTA with discretion, focusing on individuals or organizations that take birds with disregard for the law, particularly where no valid conservation measures have been employed. In doing so, the USFWS has been able to focus its limited resources on working cooperatively with various industries, agencies,

and individuals to reduce impacts on migratory birds. When necessary, the USFWS has taken enforcement actions to stop activities that threaten migratory bird populations.

II. MIGRATORY BIRD BEST MANAGEMENT PRACTICES

This document, describing migratory bird best management practices for Los Alamos National Laboratory (LANL), has been prepared by LANL biological resources subject matter experts. It provides site-wide mitigation measures that reduce risks to birds protected under the MBTA at LANL. By avoiding or minimizing the impact of LANL activities on migratory bird populations, LANL will reduce or eliminate the biological significance of any potential violation of the MBTA, as well as the possibility of enforcement action.

DRIVERS

The main driver for migratory birds in the U.S. is the MBTA (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755). The 1960 statute (Public Law 86-732) amended the MBTA by altering earlier penalty provisions. Public Law 99-645, the 1986 Emergency Wetlands Resources Act, amended the MBTA to require that felony violations under the Act must be "knowingly" committed. Public Law 105-312 also amends the law to allow the fine for misdemeanor convictions under the MBTA to be up to $15,000 rather than $5,000.

While some courts have held that the MBTA does not apply to federal agencies, in July 2000, the U.S. Court of Appeals for the District of Columbia Circuit ruled that the prohibitions of the MBTA do apply to federal agencies and that a federal agency's taking and killing of migratory birds without a permit violated the MBTA. On March 13, 2002, the U.S. District Court for the District of Columbia ruled that military training exercises of the Department of the Navy that incidentally take migratory birds without a permit violate the MBTA.

On December 2, 2002, the President signed the 2003 National Defense Authorization Act. Section 315 of the Authorization Act provides that, no later than one year after its enactment, the Secretary of the Interior (Secretary) shall exercise authority under section 704(a) of the MBTA to prescribe regulations to exempt the Armed Forces for the incidental taking of migratory birds during military readiness activities authorized by the Secretary of Defense or the Secretary of the military department concerned. f All other Federal agencies must adhere to the MBTA.

Under Executive Order 13186, the USFWS issued Director's Order 172 on Service Guidance to Conserve Migratory Birds (Appendix 3). Identifying goals for Federal program activities, the USFWS highlighted the need to identify means and measures to avoid and/or minimize potential for take of migratory birds, eggs, and active nests, including but not limited to (1) project modification, (2) time-of-year restrictions on vegetation clearing, (3) avoidance of cavity trees, colonial bird nests, and other active nests, and (4) avoidance of nests of species of concern. The USFWS also seeks to ensure that environmental analyses of Federal activities under the National Environmental Policy Act (NEPA) or other established environmental review processes evaluate the

effects of actions and agency plans on migratory birds, particularly on species of concern. The USFWS also called out the need for compliance with communication tower and power line guidelines and wind power guidelines as they are developed in project assessments.

On August 1, 2006, a Memorandum of Understanding (MOU) was finalized between the USFWS and the Department of Energy (DOE) (Appendix 4). Under that MOU, subject to the availability of appropriations and in harmony with the DOE missions and capabilities, the DOE agreed to (among other things) the following:

1. Integrate migratory bird conservation principles, measures, and practices into agency activities, and avoid or minimize, to the extent practicable, adverse impacts on migratory bird resources.
2. Protect, restore, enhance, and manage habitats of migratory birds to the fullest extent practicable, including (a) reviewing migratory bird lists and/or conducting field surveys to determine which species are likely to occur, (b) developing habitat management plans to benefit migratory birds and other species consistent with individual site programs, (c) preventing and abating the pollution or detrimental alteration of migratory bird habitat, and (d) ensuring that migratory bird protection is considered in NEPA project reviews and notifying USFWS if significant adverse impacts cannot be avoided or minimized before the start of an action.
3. Incorporate migratory bird habitat and population management objectives and recommendations into planning processes.
4. Promote appropriate programs and recommendations of comprehensive migratory bird planning efforts such as Partners In Flight (PIF).
5. Obtain permits from the applicable USFWS Regional Migratory Bird Permit Offices for the take of migratory birds as required by law.
6. Identify where take reasonably attributable to DOE actions, other than permitted activities, could affect migratory bird populations or habitats, focusing first on species of concern, their habitats, and key risk factors associated with DOE activities (e.g., installation of power poles and transmission lines, construction projects, invasive weed species eradication, and waste treatment that utilizes retention and evaporation ponds) and develop and use principles, standards, and practices that lessen the amount of takings, including avian-friendly transmission lines and power poles, scheduling construction activities around migratory bird nesting seasons, and utilizing netting covers on wastewater retention and evaporation ponds.

ROLES AND RESPONSIBILITIES

LANL Biological Resources Subject Matter Experts

- Prepare, maintain, and update Migratory Bird Best Management Practices.
- Conduct project reviews (excavation permits and PR-IDs).
- Identify best management practices for projects and activities to reduce risks to migratory birds.

- Conduct nest searches to support project activities, as needed.

Program or Project Managers

- Incorporate best management practices for protection of migratory birds into project planning and implementation.

Integrated Work Document Preparers

- Contact biological resources subject matter experts when directed to do so by the Job Hazard Analysis Tool.
- Ensure that best management practices identified in the Job Hazard Analysis Tool or by subject matter experts are incorporated into the job activities.

Environmental Management System Specialists

- Ensure impacts to migratory birds are considered when identifying environmental aspects and impacts of work activities and incorporate best management practices into procedures.

Workers

- On a voluntary basis, report occurrences of bird mortality or injury to their supervisors and to the subject matter experts on the Resources Monitoring Team's Migratory Bird website: (http://int.lanl.gov/environment/bio/controls/migratory_birds.shtml, last accessed 11/09/2011) for trend analyses.
- Follow procedures as defined in their work documents.
- General sightings of birds can also be reported on the LANL wildlife sighting website (http://int.lanl.gov/environment/bio/wildlife.shtml, last accessed 11/09/2011). Sightings of bald and golden eagles would be particularly valuable.

RISKS TO MIGRATORY BIRDS AT LANL

For LANL lands, the most significant risks to migratory birds include loss, alteration, or fragmentation of habitat; mortality resulting from collisions with building windows and guyed towers; collisions and electrocutions on power lines; the potential take of eggs and nestlings during operations that disturb vegetation during the breeding season; and exposure of birds to contaminants, particularly in ponded or wetland environments. Many of the above risks can be mitigated.

BEST MANAGEMENT PRACTICES FOR PROTECTION OF MIGRATORY BIRDS

Disturbance of Vegetation

Eggs and nestlings are the life stages of migratory birds that are most vulnerable to inadvertent taking through disturbance or destruction of nests. Avoidance is the most effective means of minimizing these takes of migratory birds. Where practicable, LANL can try to avoid potentially harmful removal of vegetation during the nesting season. The

peak of the breeding season for most species includes late May, June, July, and early August (NMBBAP 2001, Travis 1992).

Mitigation Measures for Vegetation Removal:

1. If only a small area (<1/2 ac [1/5 ha]) is going to be disturbed between June 1st and July 31st, have a LANL biological resources subject matter expert survey the area for bird nests before beginning the project.

2. If a large area (>1/2 ac [1/5 ha]) is going to be disturbed, schedule activities that remove shrubs or trees so that they do not occur between June 1st and July 31st.

3. Do not mow shrubs, willows, cattails, open fields, or other potential nesting areas between June 1st and July 31st.

4. Avoid removing standing dead trees unless there is a hazard to workers.

Collisions with Buildings and Windows

Migratory birds collide with human-made structures during the day and at night. The annual mortality of birds resulting from window collisions in the U.S. is estimated to be between 97.6 and 975 million birds (Klem 1990, Evans 1996). Birds are easily deceived by and strike reflected images of habitat and sky on windows installed in the conventional vertical position. Lights on buildings or towers have been shown to cause mortality in migrating birds.

Mitigation Measures for Building and Window Collision:

1. For new or remodeled buildings, install windows at an angle so that the pane reflects the ground instead of the surrounding sky and habitat.

2. Reduce the exterior reflectivity of windows by applying the window film *CollidEscape* (http://www.collidescape.org/, last accessed on 11/14/2011) or installing a permanent sunscreen over the window.

3. For buildings over two stories tall, turn off or dim lights near windows at night.

4. Program buildings' lighting systems to achieve a measurable reduction in night-lighting from 9 PM to 6 AM, or—ideally—ensure that all lights are switched off during that period.

5. Extinguish all exterior vanity lighting (roof-top floods, perimeter spots, etc.) during migration periods (Feb 15th–May 15th and Aug 15th–Nov 30th).

6. When lights must be left on at night, examine and adopt alternatives to bright, all-night, floorwide lighting. Options include installing motion-sensitive lighting, using desk lamps and task lighting, re-programming timers, adopting lower-intensity lighting, reducing perimeter lighting, re-scheduling work and night cleaning, establishing interior working areas, and using blinds and curtains.

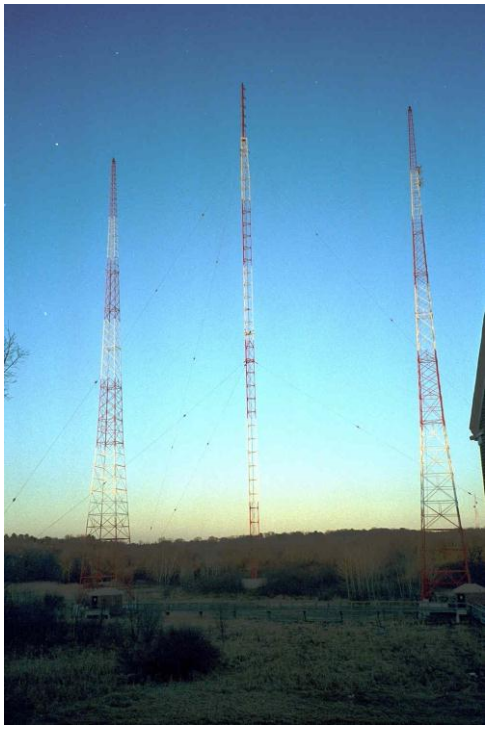
7. Report all observed bird mortalities and injuries. If the event is a collision with a building or window, identify the location so that problem areas can be identified and rectified. Observed bird mortalities or injuries can be reported online at (http://int.lanl.gov/environment/bio/wildlife.shtml, last accessed 11/09/2011).

The document, *Bird-safe Building Guidelines* (Brown and Caputo 2007), has many more design suggestions, mitigation, and case study examples for reducing bird collisions available online at (http://www.nycaudubon.org/home/BSBGuidelines.shtml, last accessed 11/09/2011).

Communication Towers

The USFWS estimates that communication towers kill four to five million birds annually (Shire et al. 2000). Towers supported by guy wires kill significantly more birds than towers that are self supporting (Gehring et al. 2004).

Two independent mechanisms of bird mortality occur at towers. The first is when birds, flying in poor visibility, do not see the structure in time to avoid it (i.e., blind collision). Towers that are lighted at night for aviation safety may help reduce bird collisions caused by poor visibility, but they bring about a second mechanism for mortality. When there is a low cloud ceiling or foggy conditions, lights on a tower refract off water particles in the air, creating an illuminated area around the tower. Birds tend to remain in the lighted space by the tower, and mortality occurs when they run into the structure and its guy wires, or even other migrating birds as more and more passing birds cram into the relatively small, lighted space. It is important to clarify that the lights apparently do not attract birds from afar, but rather tend to hold birds that pass within the vicinity.



Mitigation Measures for Towers:

From the USFWS *Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation, and Decommissioning*, available online at (http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html, last accessed on 11/09/2011).

1. Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to co-locate the communications equipment on an existing communication tower or other structure (e.g., billboard, water

tower, or building mount). Depending on tower load factors, from 6 to 10 providers may co-locate on an existing tower.

2. If co-location is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 ft (60 m) above ground level (AGL), using construction techniques that do not require guy wires (e.g., use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration (FAA) regulations permit.
3. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.
4. If at all possible, new towers should be sited within existing "antenna farms" (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries, or large areas of nesting birds), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.
5. If taller (>199 ft [60 m] AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.
6. Tower designs using guy wires for support, which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species. For guidance on markers, see Avian Power Line Interaction Committee reports (APLIC 1994 and 2006).
7. Towers and appending facilities should be sited, designed, and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint." However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance and to reduce above ground obstacles to birds in flight.
8. If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.

9. In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.
10. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.
11. If a tower is constructed or proposed for construction, USFWS personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use; to conduct dead-bird searches; to place net catchments below the towers but above the ground; and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment, as necessary, to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.
12. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

Power Lines

Bird electrocution is most often caused by the simultaneous contact by a bird of an energized conductor and a ground or a second energized conductor. This contact produces a completed circuit and electrocution.

Electrocutions can often be quite violent, causing outages of power service and starting prairie and forest fires. Generally, the electric lines involved in these events are the everyday distribution structures. In areas where raptors and other large birds are likely to use line structures for perches, the problem has been the design of the line and the transformers, arrestors, and switches attached to them.

A major part of the solution requires identifying problem pole locations and taking remedial action. Reporting records from maintenance activity or observations of electrocutions can identify not only problem poles and pole configurations, but also regions of special concern along lines. With this information, crews can retrofit with raptor protection devices or rebuild poles to raptor-safe configurations. New construction standards can also be adapted to reflect raptor-safe configurations.

The most complete and up-to-date document on raptor protection is *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC 2006). Copies of this document can be viewed online at (http://www.aplic.org/mission.php, last accessed 11/09/2011).

Currently, LANL biological resources subject matter experts report all documented electrocutions of birds on power lines to the USFWS using an online reporting tool. LANL utilities personnel have agreed to retrofit all power poles experiencing two or more electrocutions to mitigate electrocution events.

Mitigation Measures for Power Lines:

1. New power lines should comply with the suggested practices adopted by the electrical industry (APLIC 2006). Priority should be given to poles likely to be used by raptors or other birds that have a high electrocution risk.

    (A) A minimum of 60-in. [1.5-m] (48-in. [1.2-m] vertical and 60-in. [1.5-m] diagonal) spacing between electrically conductive points on the power line through spacing in new construction or shielding (e.g., phase to phase or phase to ground);

    (B) The use of covered/insulated coverings over bare conductors at structures.

2. Report observed bird mortalities and injuries to a LANL database (biological resources subject matter experts will track trends). If the event is an electrocution, identify the pole so that problem areas can be identified and rectified. Observed bird mortalities or injuries can be reported online at (http://int.lanl.gov/environment/bio/controls/migratory_birds.shtml, last accessed 11/09/2011).

3. Retrofit old power poles that are identified as problems. *Suggested Practices* states that "95 percent of all eagle electrocutions could be eliminated by correcting 2 percent of all the poles." Fabricated products are available to retrofit poles to make them unattractive for perching or to provide insulation to prevent phase to phase and phase to ground contact by birds. The Bird Electrocution Mitigation Website (http://www.edmlink.com/avian-protection.html, last accessed 11/09/20011) has online programs to assist in finding products to retrofit specific types of power poles.

Because of their large size, eagles are particularly susceptible to electrocution risks. Bald Eagles are known to occur at LANL during the winter (November 1–March 31), most commonly along the Rio Grande. LANL biological resources subject matter experts give special scrutiny to power lines projects in areas that were previously managed as Bald Eagle habitat under the Endangered Species Act to minimize the potential for electrocutions. Bald Eagles are currently protected under both the MBTA and the Bald and Golden Eagle Protection Act.

The LANL Engineering Manual PD 342, Section G4010 – Site Electrical Distribution (Revision 2, 6/11/09), requires wildlife protection mitigation techniques (p 39 – 40). These measures include requirements that new or modified overhead distribution lines in bald eagle habitat (TAs 33, 70, and 71) provide not less than 60 inches of phase-to-phase conductor spacing and not less than 60 inches of phase conductor to grounded conductor or grounded object spacing, and the use of appropriate insulation for dead-ends, jumpers and bushing covers.

Environmental Contaminants

Birds at LANL may be exposed to environmental contaminants that could affect individuals by reducing reproduction or survival. A study of Ash-throated Flycatchers at LANL found that the survival of nestlings was lower within 200 ft [60 m] of potential contaminant release sites, although no mechanism for the lowered survival was detected (Fair et al. 2003). Samplers have found a variety of contaminants (heavy metals, chemicals, insecticides, polychlorinated biphenyls, and radioactive isotopes) range across different spatial scales and concentrations on LANL land.

The uptake of contaminants from ponded or wetland environments is of particular concern. Many bird species concentrate their activities in areas containing water. Contaminants in soils may erode downstream and become concentrated within drainages. Metallic and organic compounds accumulate in aquatic sediments and also may accumulate or biomagnify in the tissues of aquatic organisms. At LANL, contaminated effluents are sometimes released into evaporation ponds. Birds may have access to these ponds.

Best management practices for contaminants should include the ongoing evaluation of ecological risks and the communication of any risks to management. Ecological risk assessment can then help prioritize future environmental remediation. Reducing or eliminating pesticide use also benefits migratory birds.

Mitigation Measures for Environmental Contaminants:

1. Birds that are found with deformities or areas with high numbers of unexplained bird mortalities should be reported and investigated. Observed bird mortalities or injuries can be reported online at (http://int.lanl.gov/environment/bio/wildlife.shtml, last accessed 11/09/2011).

2. Proposed and current evaporation ponds that receive contaminated effluents should be evaluated for risk to bird species, such as violet-green swallows and cliff swallows, which make heavy direct use of ponded waters and associated insects. If these ponds present an unacceptable risk, they should be covered so that they are unavailable. Regular maintenance should be conducted to ensure these ponds remain unavailable.

3. Ecorisk assessments conducted for environmental remediation activities should consider impacts of contaminants to migratory birds most at risk. Information from these assessments should be used to prioritize remediation activities.

4. Use integrated pest management techniques to minimize the use of pesticides at LANL.

III. BIRDS OF CONSERVATION CONCERN AND PARTNERS IN FLIGHT WATCH LIST SPECIES

This section and Table 1 present life history and habitat requirements of Birds of Conservation Concern identified by the USFWS and PIF Watch List Species (Rich et al. 2004) that potentially occur in the Los Alamos region. Birds whose habitat requirements are addressed elsewhere, such as federally listed threatened and endangered species included in LANL's Habitat Management Plan (LANL 2011), are not addressed here.

Table 1. Birds of Conservation Concern and PIF Watch List Species Potentially Occurring at LANL

Scientific Name	Common Name	Protected Status[1]	Potential to Occur[2]
Falco peregrinus anatum	American Peregrine Falcon	BOCC, NMT, FSOC	High
Falco peregrinus tundrius	Arctic Peregrine Falcon	BOCC, FSOC, NMT	Moderate
Accipiter gentilis	Northern Goshawk	BOCC, FSOC, NMS	High
Aquila chrysaetos canadensis	Golden Eagle	BOCC	Moderate
Haliaeetus leucocephalus	Bald Eagle	BOCC, NMT	High
Buteo regalis	Ferruginous Hawk	BOCC	Low
Circus cyaneus hudsonius	Northern Harrier	BOCC	Moderate
Falco mexicanus	Prairie Falcon	BOCC	Moderate
Coccyzus americanus	Yellow-billed Cuckoo	BOCC, C, NMS	Moderate
Lanius ludovicianus	Loggerhead Shrike	BOCC, NMS	High
Vireo vicinior	Gray Vireo	BOCC, NMT, PIFWL	Moderate
Contopus cooperi	Olive-sided Flycatcher	PIFWL	Moderate
Otus flammeolus	Flammulated Owl	BOCC, PIFWL	High
Melanerpes lewis	Lewis's Woodpecker	BOCC, PIFWL	High
Sphyrapicus thyroideus	Williamson's Sapsucker	BOCC	High
Gymnorhinus cyanocephalus	Pinyon Jay	BOCC, PIFWL	High
Toxostoma bendirei	Bendire's Thrasher	BOCC, PIFWL	Low
Toxostoma crissale	Crissal Thrasher	BOCC	Moderate
Oreothlypis virginiae	Virginia's Warbler	BOCC, PIFWL	High

Setophaga nigrescens	Black-throated Gray Warbler	BOCC	High
Setophaga graciae	Grace's Warbler	BOCC, PIFWL	High
Amphispiza belli	Sage Sparrow	BOCC	Moderate
Cyanthus latirostris magicus	Broad-billed Hummingbird	BOCC, NMT	Low
Selasphorus rufus	Rufous Hummingbird	PIFWL	High
Stellula calliope	Calliope Hummingbird	PIFWL	High
Aeronautes saxatalis	White-throated Swift	PIFWL	High
Patagioenas fasciata	Band-tailed Pigeon	PIFWL	High

[1] BOCC = Bird of Conservation Concern; C = Federal Candidate Species; NMS = New Mexico Sensitive Taxa (Informal); NMT = New Mexico Threatened; FSOC = Federal Species of Concern; PIFWL = Partners In Flight Watch List.

[2] Low = Never or only transients recorded from LANL region, habitat marginal; Moderate = Habitat exists, the species is recorded occasionally, has not been recorded breeding on LANL; High = Habitat exists and the species is recorded to occur or breed at LANL.

SPECIES DESCRIPTIONS

Some information in this section that is not directly cited came from the Cornell Lab of Ornithology's *All About Birds* online bird guide (http://www.allaboutbirds.org/guide/search, last accessed 11/09/2011).

American Peregrine Falcon

- Recorded as rare year-round on the Bandelier checklist (Fettig 1999).
- Peregrines have a long history of nesting in the Los Alamos area (Figure 1; Travis 1992).
- Nests located on cliff faces associated with mountains, canyons, and river gorges.
- Eat primarily birds, particularly passerine birds.
- Management recommendations: limit human activity within 1300 ft (400 m) of the nest site.
- Interagency agreement on management of nesting habitats signed in 1985 when species was federally listed as endangered.

Arctic Peregrine Falcon

- Would occur in Los Alamos region only during migration.
- Visually indistinguishable from the American peregrine falcon.

Northern Goshawk

- Recorded as confirmed breeder in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Inventories for northern goshawk nests were conducted on LANL lands in 1993 and 1994 (Sinton and Kennedy 1993, 1994). Although no nests were found on LANL lands, nests found on U.S. Forest Service lands to the west of LANL had foraging territories that potentially included LANL property (Figure 2).
- Important components of foraging habitat include snags, downed logs, woody debris, openings, large trees, herbaceous and shrubby understories, and

interspersion of forest age classes. Openings of <2 ac (0.8 ha) are recommended for forest regeneration (Sinton and Kennedy 1994).

- Nesting areas are mature to old-growth forest (ponderosa pine, mixed conifer) with 60% to 90% canopy closure.
- Management recommendations: no logging within 0.5 mi (800 m) of active nests or within established post-fledging areas; maintain forest with high canopy closure (60% to 90%), especially in nesting habitat; maintain open understory with dead and downed logs; refer to Reynolds et al. (1992) for more specific recommendations.

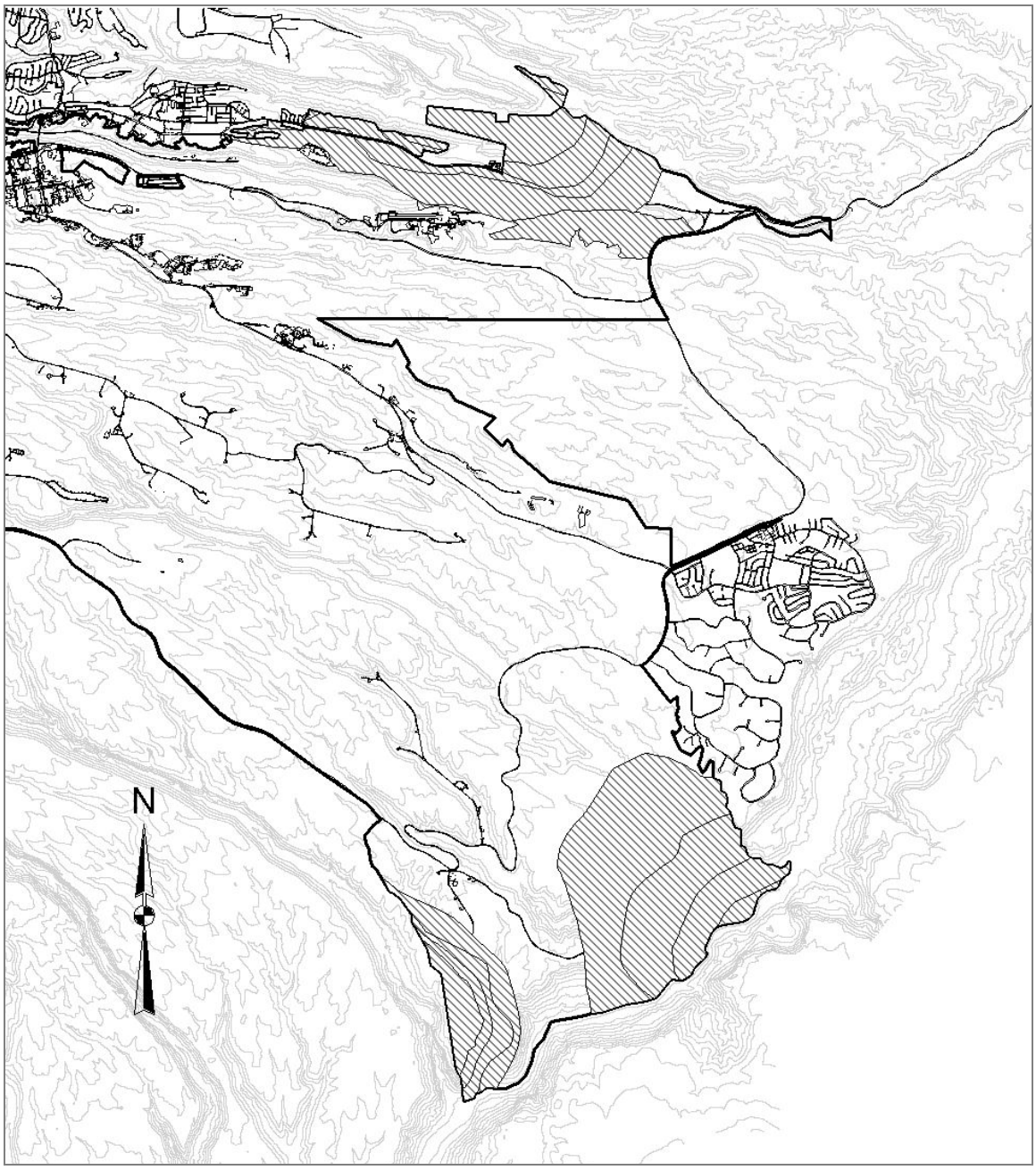


Figure 1. Location of suitable American Peregrine Falcon breeding habitat at LANL.

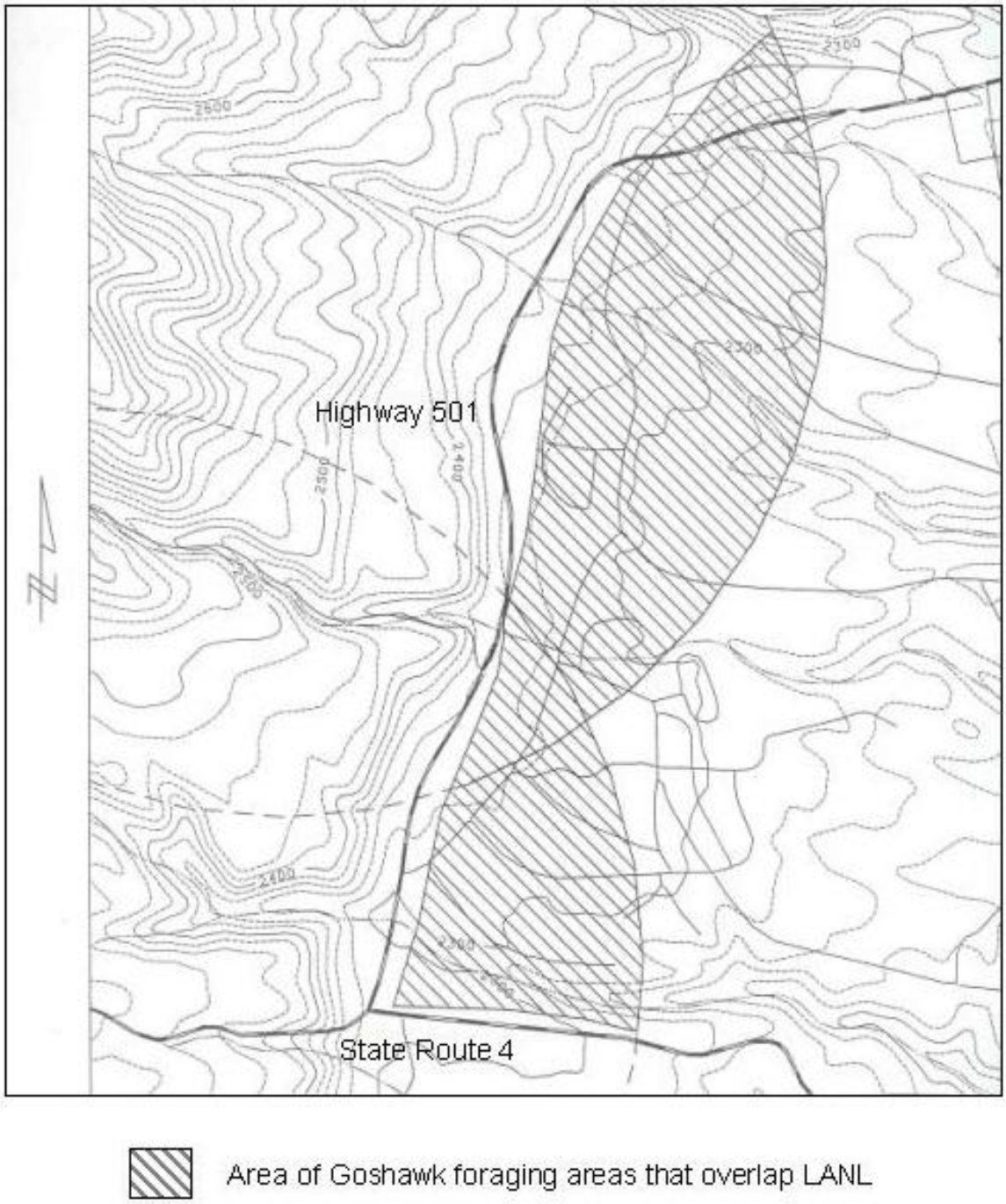


Figure 2. Foraging area boundaries of Northern Goshawks on the Santa Fe National Forest that overlap LANL (from Sinton and Kennedy 1994).

Golden Eagle

- Recorded as occasional year-round on the Bandelier checklist (Fettig 1999).
- Has been known to nest in the Los Alamos area, but was not observed during compilation of data for the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Nest on cliffs near open habitats, generalists in habitat use.
- Especially susceptible to electrocution because of large wing span.
- Commonly forage on rabbits, rock squirrels, and prairie dogs.

Bald Eagle

- Regularly observed on LANL property (Figure 3), especially along the Rio Grande, during winter (November 1–March 31).
- Formerly managed under LANL's Threatened and Endangered Species Habitat Management Plan (LANL 2011).
- Uses tall trees (including ponderosa pines) and cliffs for roosting.
- Especially susceptible to electrocution because of large wing span.

Ferruginous Hawk

- Needs proximity to high-quality grasslands or irrigated agricultural lands in New Mexico.
- Considered accidental or transient during fall-spring on Bandelier checklist (Fettig 1999).
- Recorded during Española Christmas Bird Count.
- Not recorded in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).

Northern Harrier

- Favors marshlands or dense grasslands; most commonly found in the eastern plains of New Mexico.
- Considered rare on the Bandelier checklist (Fettig 1999) spring through fall, occasional in winter.
- Not recorded in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Recorded in the Española Christmas Bird Count.

Prairie Falcon

- Recorded as rare year-round on the Bandelier checklist (Fettig 1999).
- Has been known to nest in the Los Alamos area, but was not observed during compilation of data for the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Associated with open grasslands and shrub/grasslands.
- Commonly nests in ledges or cavities in cliffs or bluffs.
- Ground squirrels and open-land songbirds important food sources.
- Management recommendations: limit human activity within 410 ft (125 m) of known nest sites; preferably 0.62 mi (1 km).

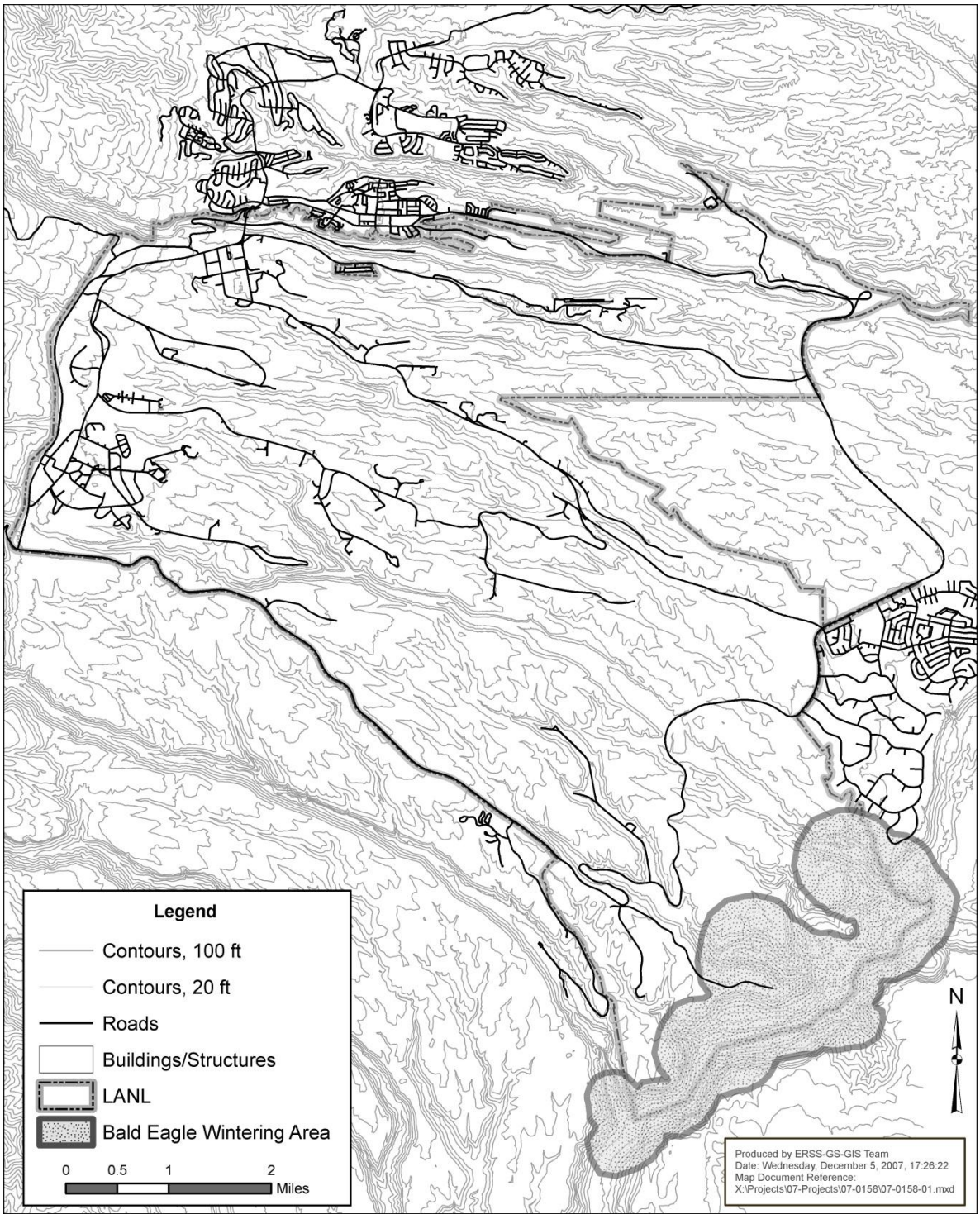


Figure 3. Winter foraging and roosting habitat for Bald Eagles along the Rio Grande and tributary canyons at LANL.

Yellow-billed Cuckoo

- Documented on the Rio Grande along the eastern boundary of LANL.
- Riparian obligate species preferring later seral stages of cottonwood/willow associations with a dense understory.
- Sensitive to fragmentation and patches of 99 ac (40 ha) minimum in many areas.
- Populations fluctuate substantially in response to fluctuations in caterpillar abundance.
- Declines resulting from loss or disturbance of riparian habitat have been consistently reported in the West.
- The greatest factors affecting the yellow-billed cuckoo have been the invasion of exotic woody plants into Southwest riparian systems and clearing of riparian woodlands for agriculture, fuel, development, and attempts at water conservation.
- Not recorded in Bandelier checklist (Fettig 1999), in local breeding bird surveys, or in the breeding bird atlas (Travis 1992).

Loggerhead Shrike

- Considered accidental or transient year-round on Bandelier checklist (Fettig 1999).
- Not recorded in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Not listed as a Bird of Conservation Concern by the USFWS in LANL's Bird Conservation Region (#16, Southern Rockies/Colorado Plateau) even though it is a Bird of Conservation Concern on the Southwest Region list.
- Found on one local breeding bird survey route (#9).
- Recorded during Española Christmas Bird Count.
- Shrub component within a grassland complex critical.
- Needs shrubs with spines or barbed wire fence lines to impale prey before eating.
- Has nested in sagebrush, bitterbrush, greasewood, Russian olive.
- Diet includes birds, insects, and small mammals.

Gray Vireo

- Considered accidental spring through fall on Bandelier checklist (Fettig 1999).
- Not recorded in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Was not recorded during surveys in suitable habitat at LANL in surveys from 2007 to 2011.
- Prefers open piñon-juniper woodland or juniper savannah with a shrub component (35% to 45% cover); no water required.
- Antelope brittlebrush, mountain mahogany, Utah serviceberry, and big sagebrush are favored shrubs found in northwest areas, with large amounts of bare ground between herbaceous plants forming ground cover.

Flammulated Owl

- Has been found on LANL during Mexican spotted owl surveys during breeding season.

- Recorded as confirmed breeder in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Recorded as occasional during spring through fall on the Bandelier checklist (Fettig 1999).
- Most closely associated with open ponderosa pine forest, but may use Douglas or white fir and blue spruce.
- Nests in secondary cavities (holes made by acorn woodpeckers, northern flicker, or sapsuckers).
- Almost exclusively insectivorous.
- Highly migratory.

Lewis' Woodpecker

- Recorded as occasional year-round on the Bandelier checklist (Fettig 1999).
- Prefers a very large open canopy with standing dead or downed snags.
- Found in three distinct habitats: open cottonwood-dominated riparian woodland, open ponderosa pine forest, burned pine forest.
- Recorded as confirmed breeder in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992); found breeding in areas burned over by the La Mesa fire.
- Lewis' Woodpecker also occurs regularly in piñon woodlands in the fall (Sept 14th to Oct 2nd) around Los Alamos (Travis 1992).
- Dome, Oso, and Cerro Grande fires between 1996 and 2000 are likely to have provided additional habitat for this species.

Williamson's Sapsucker

- Recorded as confirmed breeder in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992); occurred in 77% of blocks surveyed containing mixed conifer forest.
- Recorded as occasional year-round on the Bandelier checklist (Fettig 1999).
- Specializes in sap and phloem; breeders switch to a diet of ants during the nestling season.
- Found in mid- to high-elevation coniferous forests and mixed deciduous/conifer forests.
- Management recommendations: maintain a standing aspen component in forests; maintain taller trees in ponderosa and mixed conifer forests.

Pinyon Jay

- Recorded as occasional in winter and spring and uncommon in summer and fall on Bandelier checklist (Fettig 1999).
- Breeding or possible breeding recorded in 37% of the piñon-juniper blocks surveyed for the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Occurs in middle-elevation stands of piñon-juniper, and requires large stands of large trees over extensive areas.
- Pine seed availability is the primary factor in breeding site selection.

Bendire's Thrasher

- Recorded on the Caja del Rio west of Santa Fe.
- Occurs in open juniper savanna, using the fringes of dense vegetation areas such as riparian woodland.
- May breed in degraded grassland and shrubland supporting little grass.
- Especially prevalent in degraded grasslands of northwestern New Mexico.
- Not recorded as occurring on Bandelier checklist (Fettig 1999), breeding bird atlas, or local breeding bird survey routes.

Crissal Thrasher

- Two crissal thrashers were seen together on June 24, 1988, in riparian habitat on the east bank of the Rio Grande in Block 7-9 of the Los Alamos County breeding bird atlas (Travis 1992).
- Crissal thrashers were seen in relatively xeric habitats dominated by shrubs and in mesic woodlands that were not too distant from more xeric sites.
- Within xeric sites, bare ground and thickets were characteristic, while snags and dense underbrush formed the understory at more mesic sites.
- Also found in desert riparian deciduous woodlands.
- Not recorded on Bandelier checklist (Fettig 1999).

Virginia's Warbler

- Recorded as common in spring and summer on Bandelier checklist (Fettig 1999); not present in the fall and winter.
- Breeding birds found in 93% of blocks containing oak scrub woodland intermingled with fir, pine, and riparian forests and woodland for the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992); widespread within the county.
- Dense understory is critical and scrubby hillsides considered a special requirement; high litter cover and high shrub species richness are also associated with nesting areas.
- Uses a variety of understory species for nesting but especially Gambel oak.

Black-throated Gray Warbler

- Recorded as uncommon in spring and summer on Bandelier checklist (Fettig 1999); not present in the fall and winter.
- Only warbler found in piñon-juniper woodlands for the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992); found in 48% of piñon-juniper blocks.
- Prefers large stands of piñon-dominated woodland; often found along edges (tree/shrub or tree/grass).

Grace's Warbler

- Recorded as common in spring and summer on Bandelier checklist (Fettig 1999); not present in the fall and winter.

- Found in 96% of mesa-top habitat blocks containing ponderosa pine and in 100% of canyon bottoms containing ponderosa pine for the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Obligate of mature ponderosa pine.

Sage Sparrow

- Prefers semi-open habitat with evenly spaced shrubs 3 to 7 ft (1 to 2 m) tall.
- Closely associated with big sagebrush, either pure stands or interspersed with butterbrush, saltbrush, shadscale, rabbitbrush, or greasewood.
- Breeds in the northwestern quadrant of the state.
- Not recorded on Bandelier checklist (Fettig 1999), local breeding survey routes, or breeding bird atlas.

Broad-billed Hummingbird

- This is a common and widespread hummingbird in western Mexico, but in the Southwest, and particularly in New Mexico, it is local and uncommon.
- The array of habitats used by this hummingbird in Mexico is quite varied, but in the U.S. the species is found primarily in riparian woodlands at low to moderate elevations.
- Not listed as a Bird of Conservation Concern for the Southern Rockies/Colorado Plateau bird conservation region.
- Not recorded on Bandelier checklist (Fettig 1999).

White-throated Swift

- Recorded as confirmed breeder in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992); occurred in 77% of blocks surveyed containing cliffs.
- Recorded as common spring through fall on the Bandelier checklist (Fettig 1999).
- Nest on rocky cliff faces in steep-walled canyons, sometimes in colonies.
- White-throated swifts migrate out of Los Alamos County for the winter.

Band-tailed Pigeon

- Recorded as probable breeder in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992); occurred in blocks that contained ponderosa pine or mixed conifer forest.
- Band-tailed pigeons occur regularly in oak/shrub or ponderosa pine habitat in late summer (Travis 1992).
- Recorded as occasional spring through fall on the Bandelier checklist (Fettig 1999).
- Nests in pine, Douglas fir, or oak 10 to 45 ft (3 to 15 m) above the ground.

Rufous Hummingbird

- Not recorded in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).

- Captured annually in summer (probably during its fall migration) between 1997 and 2007 in a bird mist-netting station (MAPS) located at Technical Area 15; it is not recorded as breeding in New Mexico based on breeding bird surveys.
- Recorded as common in summer on Bandelier checklist (Fettig 1999).

Calliope Hummingbird

- Not recorded in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Captured in three years in summer (probably during its fall migration) between 1997 and 2007 in a bird mist-netting station (MAPS) located at Technical Area 15; it is not recorded as breeding in New Mexico based on breeding bird surveys.
- Recorded as rare in summer on Bandelier checklist (Fettig 1999).

Olive-sided Flycatcher

- Recorded as a confirmed breeder in the *Atlas of the Breeding Birds of Los Alamos County, New Mexico* (Travis 1992).
- Generally occurred in mixed conifer habitat during the breeding season (Travis 1992).
- Recorded as rare in spring and summer on Bandelier checklist (Fettig 1999).

IV. FUTURE WORK

Annual migratory bird monitoring needs to be continued to be implemented to monitor trends in migratory bird populations at LANL.

Plans for monitoring and managing individual species are described in the Sensitive Species Best Management Practices Source Document for Los Alamos National Laboratory (Hathcock et al. 2011).

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APPENDIX 1
PRIMARY INTERNATIONAL CONVENTIONS AND MAJOR DOMESTIC LEGISLATION FOR THE CONSERVATION OF MIGRATORY BIRDS AND THEIR HABITATS IN THE UNITED STATES

YEAR AUTHORITY
1900 Lacey Act (Amended 1981)
1913 Weeks-McLean Law (Migratory Bird Conservation Act 1913)
1916 Convention for the Protection of Migratory Birds (Canada)
1918 Migratory Bird Treaty Act
1929 Migratory Bird Conservation Act
1934 Migratory Bird Hunting and Conservation Stamp Act (Duck Stamp Act)
1936 Migratory Bird Convention with Mexico (amended 1972)
1940 Pan American (or Western Hemisphere) Convention
1940 Bald Eagle Protection Act
1956 Waterfowl Depredations Prevention Act
1961 Wetlands Loan Act of 1961 (Amended 1969, 1976)
1972 Migratory Bird Convention with Japan
1972 Convention on Wetlands of International Importance Especially as Waterfowl Habitats
1973 Endangered Species Act
1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora
1976 Migratory Bird Convention with the Union of Soviet Socialist Republics
1978 Antarctic Conservation Act
1980 Fish and Wildlife Conservation Act (Amended 1988, 1989)
1982 Convention on Conservation of Antarctic Living Marine Resources
1986 Emergency Wetlands Resources Act
1987 Driftnet Impact Monitoring, Assessment, and Control Act of 1987
1989 North American Wetlands Conservation Act
1990 Coastal Wetlands Planning, Protection, and Restoration Act
1992 Wild Bird Conservation Act
2000 Neotropical Migratory Bird Conservation Act
2001 Responsibilities of Federal Agencies to Protect Migratory Birds (Executive Order 13186)

APPENDIX 2
BIRDS NOT PROTECTED BY THE MBTA

Bird Species of the United States and its Territories and Their Protection Under the Migratory Bird Treaty Act

Compiled by John L. Trapp
U.S. Fish and Wildlife Service
Division of Migratory Bird Management
Arlington, Virginia

Last accessed 11/09/2011
http://www.fws.gov/migratorybirds/RegulationsPolicies/mbta/MBTAProtectedNonprotected.html

Determining whether or not any particular bird species detected in a free-flying and unrestrained condition in the United States or its territories is protected by the Migratory Bird Treaty Act (MBTA) depends on answering two simple questions: (1) is it native to the United States or its territories, and (2) does it belong to a family, group, or species covered by one or more of the four migratory bird conventions to which the United States is a party? Depending on the answers to these two questions, each species can be placed into just one of four categories (or cells) in the resulting 2 x 2 MBTA protection matrix (Figure 1).

		Belongs to Taxa Covered by Migratory Bird Conventions?	
		Yes	No
Native to U.S.?	**Yes**	**MBTA-Protected (50 CFR 10.13)**	Not MBTA - Protected (II.B below)
	No	Not MBTA-Protected (II.A below)	Not MBTA - Protected (II.C below)

Figure 1. Matrix for determining the MBTA status (i.e., protected or not protected) of bird species documented as occurring in the wild in the United States or its territories.

Lists of species falling in each of these categories, or links thereto, are provided below. In reality, there is a fifth category that is not dealt with in detail here. It includes all other bird species of the world that have never been detected in a wild state in the United States or its territories, and which are therefore not protected by the MBTA.

I. SPECIES PROTECTED BY MBTA

Species that are (1) native *and* (2) belong to families, groups, or species covered by conventions implemented by the MBTA

II. SPECIES NOT PROTECTED BY MBTA

A. Species that are (1) nonnative human-introduced *and* (2) belong to families covered by conventions implemented by the MBTA

B. Species that are (1) native *and* (2) belong to families not covered by any of the conventions implemented by the MBTA

Family MEGAPODIIDAE
- *Megapodius laperouse*, Micronesian Megapode+ (NMI)‡

Family PHASIANIDAE
- *Bonasa umbellus*, Ruffed Grouse+ (cont. U.S.)
- *Centrocercus minimus*, Gunnison Sage-Grouse+ (CO, UT)
- *Centrocercus urophasianus*, Greater Sage-Grouse+ (w. U.S.)
- *Dendragapus obscurus*, Blue Grouse+ (w. U.S.)
- *Falcipennis canadensis*, Spruce Grouse (n. U.S.)
- *Lagopus lagopus*, Willow Ptarmigan+ (n. U.S.)
- *Lagopus leucurus*, White-tailed Ptarmigan+ (n. U.S.)
- *Lagopus mutus*, Rock Ptarmigan+ (n. U.S.)
- *Meleagrus gallopavo*, Wild Turkey+ (cont. U.S.)
- *Tympanuchus cupido*, Greater Prairie-Chicken+ (c. & w. U.S.)‡
- *Tympanuchus pallidicinctus*, Lesser Prairie-Chicken+ (c. & w. U.S.)
- *Tympanuchus phasianellus*, Sharp-tailed Grouse+ (n. & w. U.S.)

Family ODONTOPHORIDAE
- *Callipepla californica*, California Quail+ (CA, NV, OR)
- *Callipepla gambelii*, Gambel's Quail+ (sw U.S.)
- *Callipepla squamata*, Scaled Quail+ (sw U.S.)
- *Colinus virginianus*, Northern Bobwhite+ (cont. U.S.)
- *Cyrtonyx montezumae*, Montezuma Quail+ (sw U.S.)
- *Oreortyx pictus*, Mountain Quail+ (w. U.S.)

Family BURHINIDAE
- *Burhinus bistriatus*, Double-striped Thick-knee (TX)

Family GLAREOLIDAE
- *Glareola maldivarum*, Oriental Pratincole (AK)

Family PSITTACIDAE
- *Amazona vittata*, Puerto Rican Parrot+ (PR)‡
- *Aratinga chloroptera*, Hispaniolan Parakeet (PR–Extirpated)
- *Rhynchopsitta pachyrhyncha*, Thick-billed Parrot (AZ, NM)‡

Family TODIDAE
- *Todus mexicanus*, Puerto Rican Tody+ (PR)

Family MELIPHAGIDAE

Moho braccatus, Kauai Oo+ (HI)‡

Family MONARCHIDAE

Chasiempis sandwichensis, Elepaio+ (HI)‡
Clytorhynchus vitiensis, Fiji Shrikebill+ (AS)
Myiagra freycineta, Guam Flycatcher+ (GU)
Monarcha takatsukasai, Tinian Monarch+ (NMI)
Rhipidura rufifrons, Rufous Fantail+ (GU, NMI)

Family TIMALIIDAE

Chamaea fasciata, Wrentit+ (CA, OR, WA)

Family ZOSTEROPIDAE

Zosterops conspicillatus, Bridled White-eye+ (GU, NMI)‡

Family COEREBIDAE

Coereba flaveola, Bananaquit+ (PR, VI)

Family DREPANIDINAE

Hemignathus flavus, Oahu Amakihi+ (HI)
Hemignathus kauaiensis, Kauai Amakihi+ (HI)
Hemignathus lucidus, Nukupuu+ (HI)‡
Hemignathus munroi, Akiapolaau+ (HI)
Hemignathus parvus, Anianiau+ (HI)
Hemignathus virens, Hawaii Amakihi+ (HI)
Himatione sanguinea, Apapane+ (HI)
Loxioides baileui, Palila+ (HI)‡
Loxops caeruleirostris, Akekee+ (HI)
Loxops coccineus, Akepa+ (HI)
Melamprosops phaeosoma, Poo-uli [=Po'ouli] + (HI-Extinct 2004)‡
Oreomystis bairdi, Akikiki+ (HI)
Oreomystis mana, Hawaii Creeper+ (HI)‡
Palmeria dolei, Akohekohe [=Crested Honeycreeper]+ (HI)‡
Paroreomyza flammea, Kakawahie [=Molokai Creeper]+ (HI)‡
Paroreomyza maculata, Oahu Alauahio [=Oahu Creeper]+ (HI–probably Extinct)‡
Paroreomyza montana, Maui Alauahio+ (HI)
Pseudonestor xanthophrys, Maui Parrotbill+ (HI)‡
Psittirostra psittacea, Ou+ (HI)‡
Telespiza cantans, Laysan Finch+ (HI)‡
Telespiza ultima, Nihoa Finch+ (HI)‡
Vestiaria coccinea, Iiwi+ (HI)

C. Species that are (1) <u>nonnative human-introduced</u> *and* (2) belong to families <u>not covered</u> by any of the conventions implemented by the MBTA[1]

Family TINAMIDAE

Nothoprocta perdicaria, Chilean Tinamou
Nothura maculosa, Spotted Nothura
Rhynchotus rufescens, Red-winged Tinamou

Tinamus major, Great Tinamou

Family CRACIDAE

Crax rubra, Great Curassow
Ortalis cinereiceps, Gray-headed Chachalaca
Ortalis garrula, Chestnut-winged Chachalaca
Ortalis vetula, Plain Chachalaca (GA)
Penelope purpurascens, Crested Guan

Family PHASIANIDAE

Alectoris barbara, Barbary Partridge
Alectoris chukar, Chukar^ (w. U.S.)
Alectoris graeca, Rock Partridge
Ammoperdix griseogularis, See-see Partridge
Bambusicola thoracica, Chinese Bamboo-Partridge
Bonasia bonasia, Hazel Grouse
Chrysolophus amherstiae, Lady Amherst's Pheasant
Chrysolophus pictus, Golden Pheasant
Coturnix chinensis, Blue-breasted Quail
Coturnix japonica, Japanese Quail^ (HI)
Coturnix pectoralis, Stubble Quail
Francolinus adspersus, Red-billed Francolin
Francolinus clappertoni, Clapperton's Francolin
Francolinus erckelii, Erckel's Francolin^ (HI)
Francolinus francolinus, Black Francolin^ (HI)
Francolinus icterorhynchus, Heuglin's Francolin
Francolinus leucoscepus, Yellow-necked Spurfowl* (HI-Extirpated)
Francolinus pintadeanus, Chinese Francolin
Francolinus pondicerianus, Gray Francolin^ (HI)
Gallus gallus, Red Junglefowl^ (FL, HI)
Gallus sonnerati, Gray Junglefowl
Lophura leucomelanos, Kalij Pheasant^ (HI)
Lophura nycthemera, Silver Pheasant
Melanoperdix nigra, Black Partridge
Numida meleagris, Helmeted Guineafowl^ (HI, PR)
Pavo cristatus, Common Peafowl^ (HI)
Perdix perdix, Gray Partridge^ (cont. U.S.)
Phasianus colchicus, Ring-necked Pheasant^ (cont. U.S., HI)
Phasianus versicolor, Green Pheasant
Rollulus rouloul, Crested Partridge
Syrmaticus ellioti, Elliot's Pheasant
Syrmaticus reevesii, Reeve's Pheasant
Syrmaticus soemmerringii, Copper Pheasant
Tetrao tetrix, Black Grouse
Tetrao urogallus, Western Capercaillie
Tetraogallus himalayensis, Himalayan Snowcock^ (NV)

Family TURNICIDAE

Turnix varia, Painted Buttonquail

Family ODONTOPHORIDAE

Colinus cristatus, Crested Bobwhite^ (VI–now Extirpated)
Callipepla douglasii, Elegant Quail

Family PTEROCLIDIDAE

Pterocles exustus, Chestnut-bellied Sandgrouse^ (HI)

Family PSITTACIDAE

Agapornis fischeri, Fischer's Lovebird
Agapornis personatus, Yellow-collared Lovebird
Agapornis roseicollis, Peach-faced Lovebird
Amazona aestiva, Blue-fronted Parrot
Amazona albifrons, White-fronted Parrot* (FL)
Amazona amazonica, Orange-winged Parrot
Amazona auropalliata, Yellow-naped Parrot
Amazona autumnalis, Red-lored Parrot* (FL–now Extirpated)
Amazona barbadensis, Yellow-shouldered Parrot
Amazona farinosa, Mealy Parrot
Amazona festiva, Festive Parrot
Amazona finschi, Lilac-crowned Parrot
Amazona ochrocephala, Yellow-crowned Parrot^ (PR)
Amazona oratrix, Yellow-headed Parrot^ (FL, PR)
Amazona pretrei, Red-spectacled Parrot
Amazona ventralis, Hispaniolan Parrot^ (PR, VI)
Amazona viridigenalis, Red-crowned Parrot^ (CA, FL)
Anodorhynchus hyacinthinus, Hyacinth Macaw
Ara ararauna, Blue-and-yellow Macaw^ (PR)
Ara chloroptera, Red-and-green Macaw
Ara macao, Scarlet Macaw
Ara militaris, Military Macaw
Ara severa, Chestnut-fronted Macae* (FL)
Aratinga acuticaudata, Blue-crowned Parakeet* (FL)
Aratinga aurea, Peach-fronted Parakeet
Aratinga canicularis, Orange-fronted Parakeet* (FL)
Aratinga erythrogenys, Red-masked Parakeet* (FL)
Aratinga finschi, Crimson-fronted Parakeet
Aratinga holochlora, Green Parakeet^ (TX)
Aratinga leucophthalmus, White-eyed Parakeet* (FL)
Aratinga mitrata, Mitred Parakeet^ (CA, FL)
Aratinga pertinax, Brown-throated Parakeet^ (FL, PR)
Aratinga rubritorquis, Red-throated Parakeet

Aratinga solstitialis or *jandaya*, Sun or Jandaya Parakeet
Aratinga wagleri, Scarlet-fronted Parakeet
Aratinga weddellii, Dusky-headed Parakeet* (FL)
Brotogeris chiriri, Yellow-chevroned Parakeet * (FL)
Brotogeris jugularis, Orange-chinned Parakeet
Brotogeris versicolurus, White-winged Parakeet^ (CA, FL)

Cacatua alba, White Cockatoo
Cacatua galerita, Sulphur-crested Cockatoo* (FL–now Extirpated)
Cacatua goffini, Tanimbar Cockatoo
Cacatua moluccensis, Salmon-crested Cockatoo
Cyanoliseus patagonus, Burrowing Parrot
Diopsittaca nobilis, Red-shouldered Macaw
Eclectus roratus, Eclectus Parrot
Eolophus roseicapillus, Galah
Eos bornea, Red Lory* (FL–Extirpated)
Lorius garrulus, Chattering Lory
Melopsittacus undulatus, Budgerigar^ (FL)
Myiopsitta monachus, Monk Parakeet^ (e. U.S, PR, TX)
Nandayus nenday, Black-hooded Parakeet
Nymphicus hollandicus, Cockatiel
Pionites melanocephala, Black-headed Parrot
Pionus maximiliani, Scaly-headed Parrot
Pionus senilis, White-crowned Parrot
Poicephalus rueppellii, Rueppell's Parrot* (FL–now Extirpated)
Poicephalus senegalus, Senegal Parrot* (FL–now Extirpated)
Propyrrhura auricollis, Golden-collared Macaw
Psephotus haematonotus, Red-rumped Parrot
Pseudos fuscata, Dusky Lory
Psittacula alexandri, Red-breasted Parakeet
Psittacula columboides, Malabar Parakeet
Psittacula cyanocephala, Plum-headed Parakeet
Psittacula eupatris, Alexandrine Parakeet
Psittacula krameri, Rose-ringed Parakeet^ (FL, HI, VA)
Psittacula roseata, Blossom-headed Parakeet
Psittacus erithacus, Gray Parrot
Pyrrhura frontalis, Maroon-bellied Parakeet
Pyrrhura molinae, Green-cheeked Parakeet* (FL)
Rhynchopsitta terrisi, Maroon-fronted Parrot
Trichoglossus chlorolepidotus, Scaly-breasted Lorikeet
Trichoglossus haematodus, Rainbow Lorikeet* (FL–now Extirpated)
Trichoglossus ornatus, Ornate Lorikeet

Family DICRURIDAE
Dicrurus macrocercus, Black Drongo^ (GU, NMI)

Family RHAMPHASTIDAE
Ramphastos sulfuratus, Keel-billed Toucan
Ramphastos citrolaemus, Citron-throated Toucan
Ramphastos toco, Toco Toucan

Family MUSOPHAGIDAE
Musophaga violacea, Violet Turaco
Tauraco corythaix, Knysna Turaco
Tauraco schalowi, Schalow's Turaco

Family BUCEROTIDAE

Tockus nasutus, African Gray Hornbill
Aceros undulatus, Wreathed Hornbill
Ceratogymna brevis, Silvery-cheeked Hornbill
Family BUCORVIDAE
Bucorvus abyssinicus, Abyssinian Ground-Hornbill
Family PYCNONOTIDAE
Hypsipetes madagascariensis, Black Bulbul
Pycnonotus cafer, Red-vented Bulbul^ (FL)
Pycnonotus jocosus, Red-whiskered Bulbul^ (FL, HI)
Family PITTIDAE
Pitta guajana, Banded Pitta
Family IRENIDAE
Irena puella, Asian Fairy-bluebird
Family TIMALIIDAE
Garrulax canorus, Hwamei^ (HI)
Garrulax leucolophus, White-crested Laughingthrush* (HI-Extirpated)
Garrulax pectoralis, Greater Necklaced Laughingthrush^ (HI)
Leiothrix lutea, Red-billed Leiothrix^ (HI)
Family ZOSTEROPIDAE
Zosterops japonicus, Japanese White-eye^ (HI)
Family STURNIDAE
Acridotheres cristatellus, Crested Myna
Acridotheres fuscus, Jungle Myna
Acridotheres tristis, Common Myna^ (FL, HI)
Gracula religiosa, Hill Myna^ (HI, PR)
Lamprotornis superbus, Superb Starling
Mino dumontii, Yellow-faced Myna
Sturnus vulgaris, European Starling^ (cont. U.S., PR)
Family PASSERIDAE
Passer domesticus, House Sparrow^ (cont. U.S., HI, PR, VI)
Passer luteus, Sudan Golden Sparrow
Passer montanus, Eurasian Tree Sparrow^ (IL, MO)
Family PLOCEIDAE
Euplectes afer, Yellow-crowned Bishop^ (PR)
Euplectes ardens, Red-collared Bishop^ (PR)
Euplectes franciscanus, Orange Bishop^ (CA, PR)
Euplectes orix, Red Bishop
Ploceus cucullatus, Village Weaver
Ploceus velatus, African Masked-Weaver
Family ESTRIDIDAE
Amandava amandava, Red Avadavat^ (HI, PR)
Estrilda astrild, Common Waxbill^ (HI, PR)
Estrilda caerulescens, Lavender Waxbill^ (HI)
Estrilda melpoda, Orange-cheeked Waxbill^ (HI, PR)
Estrilda troglodytes, Black-rumped Waxbill^ (HI, PR)
Lonchura atricapilla, Chestnut Munia^ (HI, PR)

Lonchura cantans, African Silverbill^ (HI)
Lonchura cucullata, Bronze Mannikin^ (PR)
Lonchura maja, White-headed Munia
Lonchura malabarica, Indian Silverbill^ (PR)
Lonchura malacca, Tricolored Munia^ (HI, PR)
Lonchura nana, Madagascar Munia
Lonchura punctulata, Nutmeg Mannikin^ (HI)
Padda oryzivora, Java Sparrow^ (HI, PR)
Taeniopygia guttata, Zebra Finch
Uraeginthus bengalus, Red-cheeked Cordonbleu^ (HI)
Vidua macroura, Pin-tailed Whydah^ (PR)

Endnote:

Symbols: plus sign (+) denotes a native species with breeding populations in the U.S.; hat (^) denotes an introduced species that has established a self-sustaining breeding population; asterisk (*) denotes an introduced species that has nested in the U.S. but has not established a self-sustaining breeding population; double dagger (‡) denotes a species that is covered by the Endangered Species Act in all or part of its U.S. range.

Abbreviations (in parentheses) are used to denote the known U.S. range, and are used only for species with established populations or evidence of breeding: AK = Alaska, AS = American Samoa, AZ = Arizona, CA = California, FL = Florida, GU = Guam, HI = Hawaii, NM = New Mexico, NMI = Northern Marina Islands, NV = Nevada, OR = Oregon, PR = Puerto Rico, TX = Texas, UT = Utah, VI = Virgin Islands, WA = Washington.

APPENDIX 3
EXECUTIVE ORDER 13186

Executive Order 13186

Presidential Documents

Executive Order 13186 -- Responsibilities of Federal Agencies To Protect Migratory Birds

January 10, 2001

By the authority vested in me as President by the Constitution and the laws of the United States of America, and in furtherance of the purposes of the migratory bird conventions, the Migratory Bird Treaty Act (16 U.S.C. 703-711), the Bald and Golden Eagle Protection Acts (16 U.S.C. 668-668d), the Fish and Wildlife Coordination Act (16 U.S.C. 661-666c), the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347), and other pertinent statutes, it is hereby ordered as follows:

Section 1. Policy. Migratory birds are of great ecological and economic value to this country and to other countries. They contribute to biological diversity and bring tremendous enjoyment to millions of Americans who study, watch, feed, or hunt these birds throughout the United States and other countries. The United States has recognized the critical importance of this shared resource by ratifying international, bilateral conventions for the conservation of migratory birds. Such conventions include the Convention for the Protection of Migratory Birds with Great Britain on behalf of Canada 1916, the Convention for the Protection of Migratory Birds and Game Mammals-Mexico 1936, the Convention for the Protection of Birds and Their Environment-Japan 1972, and the Convention for the Conservation of Migratory Birds and Their Environment-Union of Soviet Socialist Republics 1978.

These migratory bird conventions impose substantive obligations on the United States for the conservation of migratory birds and their habitats, and through the Migratory Bird Treaty Act (Act), the United States has implemented these migratory bird conventions with respect to the United States. This Executive Order directs Executive departments and agencies to take certain actions to further implement the Act. Sec. 2. Definitions. For purposes of this Order:

(a) "Take" means take as defined in 50 C.F.R. 10.12, and includes both "intentional" and "unintentional" take.

(b) "Intentional take" means take that is the purpose of the activity in question.

(c) "Unintentional take" means take that results from, but is not the purpose of, the activity in question.

(d) "Migratory bird" means any bird listed in 50 C.F.R. 10.13.

(e) "Migratory bird resources" means migratory birds and the habitats upon which they depend.

(f) "Migratory bird convention" means, collectively, the bilateral conventions (with Great Britain/Canada, Mexico, Japan, and Russia) for the conservation of migratory bird resources.

(g) "Federal agency" means an Executive department or agency, but does not include

independent establishments as defined by 5 U.S.C. 104.

(h) "Action" means a program, activity, project, official policy (such as a rule or regulation), or formal plan directly carried out by a Federal agency. Each Federal agency will further define what the term "action" means with respect to its own authorities and what programs should be included in the agency-specific Memoranda of Understanding required by this Order. Actions delegated to or assumed by nonfederal entities, or carried out by nonfederal entities with Federal assistance, are not subject to this Order. Such actions, however, continue to be subject to the Migratory Bird Treaty Act.

(i) "Species of concern" refers to those species listed in the periodic report "Migratory Nongame Birds of Management Concern in the United States," priority migratory bird species as documented by established plans (such as Bird Conservation Regions in the North American Bird Conservation Initiative or Partners in Flight physiographic areas), and those species listed in 50 C.F.R. 17.11.

Sec. 3. Federal Agency Responsibilities. (a) Each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement, within 2 years, a Memorandum of Understanding (MOU) with the Fish and Wildlife Service (Service) that shall promote the conservation of migratory bird populations.

(b) In coordination with affected Federal agencies, the Service shall develop a schedule for completion of the MOUs within 180 days of the date of this Order. The schedule shall give priority to completing the MOUs with agencies having the most substantive impacts on migratory birds.

(c) Each MOU shall establish protocols for implementation of the MOU and for reporting accomplishments. These protocols may be incorporated into existing actions; however, the MOU shall recognize that the agency may not be able to implement some elements of the MOU until such time as the agency has successfully included them in each agency's formal planning processes (such as revision of agency land management plans, land use compatibility guidelines, integrated resource management plans, and fishery management plans), including public participation and NEPA analysis, as appropriate. This Order and the MOUs to be developed by the agencies are intended to be implemented when new actions or renewal of contracts, permits, delegations, or other third party agreements are initiated as well as during the initiation of new, or revisions to, land management plans.

(d) Each MOU shall include an elevation process to resolve any dispute between the signatory agencies regarding a particular practice or activity.

(e) Pursuant to its MOU, each agency shall, to the extent permitted by law and subject to the availability of appropriations and within Administration budgetary limits, and in harmony with agency missions:

(1) support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;

(2) restore and enhance the habitat of migratory birds, as practicable;

(3) prevent or abate the pollution or detrimental alteration of the Environment for the benefit of

migratory birds, as practicable;

(4) design migratory bird habitat and population conservation principles, measures, and practices, into agency plans and planning processes (natural resource, land management, and environmental quality planning, including, but not limited to, forest and rangeland planning, coastal management planning, watershed planning, etc.) as practicable, and coordinate with other agencies and nonfederal partners in planning efforts;

(5) within established authorities and in conjunction with the adoption, amendment, or revision of agency management plans and guidance, ensure that agency plans and actions promote programs and recommendations of comprehensive migratory bird planning efforts such as Partners-in-Flight, U.S. National Shorebird Plan, North American Waterfowl Management Plan, North American Colonial Waterbird Plan, and other planning efforts, as well as guidance from other sources, including the Food and Agricultural Organization's International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries;

(6) ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern;

(7) provide notice to the Service in advance of conducting an action that is intended to take migratory birds, or annually report to the Service on the number of individuals of each species of migratory birds intentionally taken during the conduct of any agency action, including but not limited to banding or marking, scientific collecting, taxidermy, and depredation control;

(8) minimize the intentional take of species of concern by: (i) delineating standards and procedures for such take; and (ii) developing procedures for the review and evaluation of take actions. With respect to intentional take, the MOU shall be consistent with the appropriate sections of 50 C.F.R. parts 10, 21, and 22;

(9) identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors. With respect to those actions so identified, the agency shall develop and use principles, standards, and practices that will lessen the amount of unintentional take, developing any such conservation efforts in cooperation with the Service. These principles, standards, and practices shall be regularly evaluated and revised to ensure that they are effective in lessening the detrimental effect of agency actions on migratory bird populations. The agency also shall inventory and monitor bird habitat and populations within the agency's capabilities and authorities to the extent feasible to facilitate decisions about the need for, and effectiveness of, conservation efforts;

(10) within the scope of its statutorily-designated authorities, control the import, export, and establishment in the wild of live exotic animals and plants that may be harmful to migratory bird resources;

(11) promote research and information exchange related to the conservation of migratory bird resources, including coordinated inventorying and monitoring and the collection and assessment of information on environmental contaminants and other physical or biological stressors having potential relevance to migratory bird conservation. Where such information is collected in the course of agency actions or supported through Federal financial assistance, reasonable efforts shall be made to share such information with the Service, the Biological Resources Division of the U.S. Geological Survey, and other appropriate repositories of such data (e.g, the Cornell Laboratory of Ornithology);

(12) provide training and information to appropriate employees on methods and means of avoiding or minimizing the take of migratory birds and conserving and restoring migratory bird habitat;

(13) promote migratory bird conservation in international activities and with other countries and international partners, in consultation with the Department of State, as appropriate or relevant to the agency's authorities;

(14) recognize and promote economic and recreational values of birds, as appropriate; and

(15) develop partnerships with non-Federal entities to further bird conservation.

(f) Notwithstanding the requirement to finalize an MOU within 2 years, each agency is encouraged to immediately begin implementing the conservation measures set forth above in subparagraphs (1) through (15) of this section, as appropriate and practicable.

(g) Each agency shall advise the public of the availability of its MOU through a notice published in the Federal Register.

Sec. 4. Council for the Conservation of Migratory Birds. (a) The Secretary of Interior shall establish an interagency Council for the Conservation of Migratory Birds (Council) to oversee the implementation of this Order. The Council's duties shall include the following: (1) sharing the latest resource information to assist in the conservation and management of migratory birds; (2) developing an annual report of accomplishments and recommendations related to this Order; (3) fostering partnerships to further the goals of this Order; and (4) selecting an annual recipient of a Presidential Migratory Bird Federal Stewardship Award for contributions to the protection of migratory birds.

(b) The Council shall include representation, at the bureau director/administrator level, from the Departments of the Interior, State, Commerce, Agriculture, Transportation, Energy, Defense, and the Environmental Protection Agency and from such other agencies as appropriate.

Sec. 5. Application and Judicial Review. (a) This Order and the MOU to be developed by the agencies do not require changes to current contracts, permits, or other third party agreements.

(b) This Order is intended only to improve the internal management of the Executive branch and does not create any right or benefit, substantive or procedural, separately enforceable at law or equity by a party against the United States, its agencies or instrumentalities, its officers or employees, or any other person.

William J. Clinton
The White House,
January 10, 2001.

APPENDIX 4

MEMORANDUM OF UNDERSTANDING BETWEEN THE UNITED STATES DEPARTMENT OF ENERGY AND THE UNITED STATES FISH AND WILDLIFE SERVICE REGARDING IMPLEMENTATION OF EXECUTIVE ORDER 13186

"Responsibilities of Federal Agencies to Protect Migratory Birds" Prepared by: United States Department of Energy and United States Fish and Wildlife Service

"Responsibilities of Federal Agencies to Protect Migratory Birds"
This Memorandum of Understanding (MOU) is entered into by and between the United States Department of Energy (DOE) and the United States Department of the Interior, Fish and Wildlife Service (FWS), herein collectively referred to as the Parties.

A. Purpose
This MOU meets the requirements under Section 3 of Executive Order 13186, (66 FR 3853, January 17, 2001), concerning the responsibilities of Federal agencies to protect migratory birds. The Executive Order directs executive departments and agencies to take certain actions to protect and conserve migratory birds. The purpose of this MOU is to strengthen migratory bird conservation through enhanced collaboration between DOE and the FWS, in coordination with state, tribal, and local governments. This MOU does not remove the Parties' legal requirements under the Migratory Bird Treaty Act and does not authorize the take of migratory birds. This MOU identifies specific areas in which cooperation between the Parties will substantially contribute to the conservation and management of migratory birds and their habitats.

B. Authority
This MOU is entered under the provisions of the following laws and other authorities available to the Parties:
Migratory Bird Treaty Act (16 U.S.C. §§ 703-711)
Bald and Golden Eagle Protection Acts (16 U.S.C. §§ 668-668d)
Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-666c)
The National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321-4347)
The Endangered Species Act of 1973 (16 U.S.C. §§ 1531-1544)
Executive Order 13186 (66 FR 3853)

C. Missions of Both Parties
DOE
The mission of DOE is to enhance national security through fostering domestic energy production, energy efficiency, and the development of alternative energy sources; ensuring the safety and integrity of the Nation's nuclear weapons; advancing nuclear non-proliferation; cleaning up the environmental legacy of the Cold War and permanently disposing of radioactive waste; and leading in the physical sciences and advancing the biological, environmental, and computational sciences.
FWS
The mission of the FWS is to work with others to conserve, protect, manage, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

The FWS Migratory Bird Program serves as a focal point in the United States for policy development and strategic planning, program implementation, and evaluation of actions designed to conserve migratory birds and their habitats.

The FWS is legally mandated to implement the conservation provisions of the Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.), which includes responsibilities for migratory bird population management (*e.g.*, monitoring), habitat protection (*e.g.*, acquisition, enhancement, and modification), international coordination, and regulations development and enforcement.

D. Statement of Mutual Interest and Benefit

DOE manages approximately 2.28 million acres of land, of which a substantial amount is undeveloped and includes wetlands, deserts, and forested mountain areas that provide habitat for a variety of wildlife, including many species of migratory birds. DOE takes its environmental stewardship role seriously and advocates a proactive management stance toward the natural environment. Migratory birds are a part of the natural and man-made environment at many DOE sites, and proper management of migratory birds on DOE lands fosters vigorous and diverse species. DOE recognizes that some of its activities have the potential to impact migratory birds (e.g., transmission lines, power poles, waste treatment settling and evaporation ponds, invasive weeds and various construction activities). To lessen the impacts on migratory birds, whenever appropriate and feasible, DOE sites utilize avian-friendly transmission lines and power poles that are designed to minimize bird collisions and electrocutions; sponsor avian workshops with federal and private entities on minimizing electrocutions and collisions on electric utility structures; monitor waste water retention and evaporation ponds and when necessary utilize netting or noise devices to discourage migratory bird use; utilize invasive weed eradication practices that pose minimal risks to migratory birds; reseed areas with desirable plant species to encourage migratory bird use; monitor construction projects and when feasible schedule construction activities after nesting seasons; have developed habitat management plans for various bird species the Mexican Spotted Owl and Southwestern Willow Flycatcher. In addition, DOE routinely utilizes the National Environmental Policy Act (NEPA) process to evaluate the potentially significant environmental impact of proposed actions, including impacts to migratory birds, and to examine alternatives to those actions.

Both Parties have interests and responsibilities in the conservation and management of America's natural heritage and natural resources. The Parties agree that migratory birds are important components of biological diversity; and that their conservation and management will help to sustain ecological integrity, and will serve the growing public demand for outdoor recreation, conservation education, wildlife viewing, and hunting opportunities.

This MOU is necessarily general due to the diversity of programs throughout the DOE site complex.

In consideration of these premises, the Parties agree as follows:

E. Obligations of Both Parties

To the extent allowed by law, subject to the availability of appropriations and within Administration budgetary limits, and in harmony with DOE and FWS missions and capabilities, both Parties shall:

1. Protect, restore, enhance and manage habitats of migratory birds, to the fullest extent practicable. This includes:

    a. Implementing management practices that minimize or avoid adverse impact on migratory bird populations, and their nesting, migration, or over-wintering habitats.

    b. Working collaboratively with Federal and State agencies to identify, protect, restore, enhance, monitor and manage important migratory bird areas.

    c. Preventing or abating the pollution or detrimental alteration of the environment of migratory birds.

2. Promote collaborative inventorying, monitoring, management studies, research, and information exchange related to the conservation of migratory birds and management of their habitats. This includes:

    a. Sharing inventory, monitoring, research and study data for breeding, migrating and wintering populations and habitats in a timely fashion with national repositories (such as BBIRD and MAPS), other Federal and State agencies as appropriate, and among DOE offices, as practicable.

    b. Collaborating, as practicable, in management studies and research to identify the habitat conditions needed by migratory bird species, to sustain populations of coexisting species and understand the effects of management activities on them.

    c. Developing partnerships with other agencies and non-Federal entities to further bird conservation, as practicable.

3. Identify and pursue training opportunities for appropriate employees in methods of monitoring bird populations for the purposes of inventorying, measuring demographic parameters and evaluating the effects of land management activities; and implementing land use practices that promote bird conservation.

4. Provide representation on the Council for the Conservation of Migratory Birds.

5. Periodically evaluate the measures taken under this MOU to protect, restore, and enhance migratory bird resources, including avoiding or minimizing take of migratory birds and, if necessary, suggesting revisions to the FWS to ensure that the most effective conservation measures are employed. These efforts will be coordinated through the FWS's Division of Migratory Birds.

F. Obligations of the DOE

To the extent allowed by law, subject to the availability of appropriations and within Administration budgetary limits, and in harmony with the Department's missions and capabilities, the DOE shall:

1. Integrate migratory bird conservation principles, measures, and practices into agency activities. Avoid or minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions, in compliance with, and supporting the purposes of the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, the Endangered Species Act, NEPA, and other applicable statutes.

2. Protect, restore, enhance, and manage habitats of migratory birds, to the fullest extent practicable. This includes:

a. Reviewing FWS migratory bird lists and/or conducting field surveys to determine which species occur or are likely to occur on DOE properties;

b. Developing habitat management plans to benefit migratory birds and other species consistent with individual DOE site programs;

c. Restoring and enhancing migratory bird and other species' habitat consistent with individual DOE site programs. This may include restoring wetland habitat, controlling invasive species (both plant and animal), reseeding with desirable plant species, etc.; and

d. Preventing and abating the pollution or detrimental alteration of migratory bird habitat by:

i. Properly managing hazardous wastes associated with site activities by containerizing, storing or transporting, or burying wastes in accordance with applicable regulations and guidelines;

ii. Timely remediation of areas that have been contaminated with hazardous materials/wastes;

iii. Using controlled burning to manage invasive weeds; and

iv. Using physical, mechanical and/or herbicidal treatments that pose minimal risks to migratory birds to control invasive weeds.

e. Ensuring that migratory bird protection and conservation is considered in NEPA project reviews by:

i. Identifying and evaluating the effects of proposed projects (actions) on migratory birds;

ii. Minimizing adverse impacts on migratory birds by evaluating all reasonable alternatives of a proposed action; and

iii. Providing reasonable measures within a proposed action to eliminate or minimize adverse effects on migratory bird species. If DOE determines that significant adverse effects to migratory birds cannot be avoided or minimized, the DOE site will notify the FWS prior to the start of the proposed action.

3. Incorporate migratory bird habitat and population management objectives and recommendations into planning processes, including DOE site planning documents, as appropriate, in cooperation with federal, state, and tribal agencies.

4. Promote appropriate programs and recommendations of comprehensive migratory bird planning efforts such as Partners in Flight, United States Shorebird Conservation Plan, North American Waterfowl Management Plan, North American Colonial Waterbird Conservation Plan, and other planning efforts, within established authorities and in conjunction with the adoption, amendment, or revision of agency management plans and guidance.

5. Obtain permits from the applicable FWS Regional Migratory Bird Permit Offices for the take of migratory birds pursuant to requirements of 50 CFR §§ 10, 13, 21, and 22. In doing so, this shall serve as advance notice to the FWS of conducting an action that is likely to result in the take of migratory birds.

6. Identify where take reasonably attributable to DOE actions, other than permitted activities referenced in paragraph 5 above, could affect migratory bird populations or

habitats, focusing first on species of concern, their habitats, and key risk factors associated with DOE activities (*e.g.*, installation of power poles and transmission lines, construction projects, invasive weed species eradication and waste treatment which utilizes settling and evaporation ponds).

a. With respect to those actions so identified, and where appropriate and feasible, DOE shall develop and use principles, standards, and practices that lessen the amount of takings. This includes:

i. Utilizing avian-friendly transmission lines and power poles;

ii. Scheduling construction activities around migratory bird nesting seasons;

iii. Utilizing netting covers on waste water retention and evaporation ponds;

iv. Sponsoring avian workshops on minimizing electrocutions and collisions on electric utility structures; and

v. Following the recommendations and suggested practices in wind turbine and powerline guidelines published by FWS and the Avian Power Line Interaction Committee, respectively, to minimize impacts from existing facilities and in the construction of new utility and energy systems and associated infrastructure.

b. DOE shall inventory and monitor bird populations and habitats, as appropriate and feasible, to facilitate decisions about the need for, and effectiveness of, conservation efforts.

7. Recognize and promote the ecological, economic and recreational values of migratory birds into outreach and educational materials and activities.
8. Advise the public of this MOU through a notice published in the *Federal Register*.

G. Obligations of the FWS

Unless otherwise specified, the following activities will be coordinated through the Regional Migratory Bird Program.

To the extent permitted by law and subject to the availability of appropriations and Administration budgetary limits, and to the extent that the following obligations are in harmony with agency missions and capabilities, the FWS shall:

1. Work to identify special migratory bird habitats (*e.g.*, migration corridors, stopover habitats, nesting habitats) under the stewardship of DOE.
2. Improve cooperation and coordination with DOE and other Federal agencies, State agencies, universities, and independent nongovernmental organizations involved in monitoring and research efforts that provide reliable information on the status and trends of migratory bird populations.
3. Provide assistance, at the request of DOE, to identify particular species and habitats that would benefit most from particular agency land management decisions.
4. Initiate new or provide greater support for long-term research and monitoring programs of birds on DOE and adjacent lands.
5. The Division of Migratory Birds shall keep DOE informed of the latest directions in bird conservation that might affect DOE activities, lands, or policies, by providing information on:

a. Changes to the Migratory Bird Treaty Act and its regulations and procedures, or other acts and their regulations affecting migratory birds;
b. Population trends of species that might be affected by activities on DOE lands;
c. Changes to the list of Birds of Conservation Concern;
d. Changes in, updates to or additions to national and regional bird conservation plans (*e.g.*, Partners in Flight bird conservation plans, United States Shorebird Conservation Plan, North American Waterbird Conservation Plan, and the North American Waterfowl Management Plan); and
e. Updated protection measures for reducing human-caused bird mortality as new information becomes available.

6. Encourage widespread use of the best available scientific information in the management of migratory bird populations.
7. Conduct informational and educational programs for DOE oriented toward migratory bird conservation.

H. Termination of MOU; Miscellaneous Provisions

It is mutually agreed and understood that:
This MOU in no way alters or diminishes any Party's obligations or responsibilities under any statute or other legal authority.
1. Either Party may terminate this MOU, in whole or in part, at any time before the date of expiration by providing the other Party 30 day's written notice to that effect.
2. Changes to this MOU shall be made by means of written modification(s) bilaterally executed by the Parties. This instrument in no way alters a Party's obligations to conduct environmental analyses, including compliance with NEPA requirements.
3. This MOU in no way restricts either Party from participating in similar activities with other public or private agencies, governments, organizations, or individuals.
4. Documents furnished to a Party under this MOU may be subject to the Freedom of Information Act (FOIA, 5 U.S.C. § 552). A Party shall not release documents originating in the other Party to a FOIA requester. Rather, the Party shall forward such document(s) to the originating Party for review, determination and response directly to the requester.
5. Modification of this MOU may be made by the issuance of a written amendment(s), signed and dated by all Parties.
6. This is not a binding contract but is an MOU, which broadly states basic understandings between the Parties hereto of the tasks and methods for performing the tasks, described herein. The details of the levels of support to be furnished one organization by the other with respect to funding shall be developed in specific interagency agreements or other agreements, subject to the availability of funds. This MOU shall not be used to obligate or commit funds or as the basis for the transfer of funds. This instrument does not establish authority for noncompetitive award of any contract or other agreement. Any contract or agreement for training or other service must fully comply with all applicable requirements for competition.
7. Any press releases that reference this MOU, or the relationship established between the Parties of this MOU, shall have prior approval of both Parties.
8. Periodic meetings of the Parties shall be scheduled to review progress and identify opportunities for advancing the understandings in this MOU. Collaboration under this

MOU shall be in accordance with the applicable statutes and regulations governing the respective Parties.

9. In the event that a dispute arises between the Parties, whether programmatic or procedural, that could have clear, identifiable negative impacts for migratory birds covered by this MOU, the DOE site representative(s) responsible for administering this MOU and their FWS counterpart(s) shall contact DOE's Office of Dispute Resolution and/or FWS's Bureau Dispute Resolution Specialist, who will advise the Parties in determining whether a dispute resolution process, such as convening a mediation with a skilled, experienced mediator, would be appropriate. If resolution can not be reached at the local level, either Party can elevate the issue to the appropriate officials at DOE and FWS Regional offices. In the event that there is no resolution at the Regional levels, the Parties may elect to elevate the dispute to the Washington, D.C. office of each agency.

10. This MOU does not require changes to current contracts, permits, or other third party agreements. The MOU recognizes that DOE may not be able to implement some elements of the MOU until such time as DOE has successfully included them in formal planning processes.

11. This MOU is intended only to improve the internal management of the Executive Branch of the Federal Government and does not create any right or benefit, substantive or procedural, separately enforceable at law or equity by a party against the United States, its agencies or instrumentalities, its officers or employees, or any other person.

12. The principal contacts for this MOU are as follows:

Leroy Banicki Brian Millsap, Chief
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