ATTACHMENT P1-9
AVIAN PROTECTION PLAN

Avian Protection Plan

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INTRODUCTION

Legal and Regulatory Requirements

Policies

This compliance plan conforms to the IDACORP, Inc., *Code of Business Conduct*, *Federal Energy Regulatory Commission* (FERC) *Compliance Policy*, and *Avian Protection Standard*.

Purpose

Since 1972, Idaho Power Company (IPC) has been actively working to reduce avian electrocutions and collisions. Through partnerships with Morley Nelson and the Avian Powerline Interaction Committee (APLIC), IPC helped develop industry guidelines and the manual *Suggested Practices for Raptor Protection on Powerlines: The State of the Art in 1996* (including earlier editions) (Olendorff et al. 1981; Miller et al. 1975). IPC is a member of the APLIC, an organization that works in partnership with utilities, resource agencies, and the public to develop and provide educational resources; identify and fund research; develop and provide cost-effective management options; and serve as the focal point for avian interaction utility issues.

This *Avian Protection Plan* (APP) provides the guidance by which IPC manages and implements actions necessary to be compliant with applicable laws and internal environmental stewardship policies.

Several laws, including the *Migratory Bird Treaty Act of 1918* (MBTA), the *Bald and Golden Eagle Protection Act of 1940* (BGEPA), and the *Endangered Species Act of 1973* (ESA), protect migratory bird species. These laws prohibit killing or otherwise harming all birds native to North America, with the exception of introduced house sparrows (*Passer domesticus*), European starlings (*Sturnus vulgaris*), rock doves (*Columba livia*), mute swans (*Cygnus olor*), monk parakeets (*Myiopsitta monachus*), and non migratory upland game birds. Violation of the acts can result in misdemeanor or felony charges.

IPC's APP focuses on 3 types of bird/powerline interactions: 1) electrocution, 2) collision, and 3) nesting birds. Training is provided to employees to make them aware of federal regulations and permits and IPC procedures for each type of bird/powerline interaction.

Developing and implementing an effective APP helps IPC meet its regulatory requirements, maintain good standing with regulatory agencies and IPC customers, reduce bird-related outages, and efficiently and effectively manage avian interactions with IPC electrical facilities.

Scope

This APP integrates IPC's avian protection policies in a comprehensive document intended to assist field personnel in managing bird/powerline interactions and documenting the incidence of mortalities and problem nests of raptors and other large birds. This APP references the

Avian Protection Standard; *Avian Protection Procedures*; and sections of IPC's *Overhead Manual*, *Distribution Manual*, *Transmission Manual*, and *Materials Manual* for procedures, detailed specifications on design guidelines, and wildlife protection products. Avian protection procedures are outlined in both this APP and delivery manuals and documents.

ENVIRONMENTAL LEGISLATION AND PERMITS

Federal Laws

The following 3 federal laws protect and prohibit killing of most bird species:

- MBTA
- BGEPA
- ESA

MBTA

The MBTA (16 United States [U.S.] Code [USC] 703–712) protects migratory birds, their body parts, nests, and eggs. This act states the following shall be unlawful:

> … to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage or export, any migratory bird, or any body part, nest, or egg of any such bird unless and except as permitted by regulation.

The MBTA protects all birds native to North America, excluding house sparrows, European starlings, mute swans, rock doves, monk parakeets, and non-migratory upland game birds. Violations of the MBTA can result in a misdemeanor or felony charge.

BGEPA

Under the authority of the BGEPA, bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are given additional legal protection. Under the BGEPA, "take" is defined as "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Violators of the BGEPA's take provision may be fined up to $100,000 and/or imprisoned for up to 1 year. The BGEPA has additional provisions where, in the case of a second or subsequent conviction, penalties of up to $250,000 and/or 2 years imprisonment may be imposed.

ESA

The ESA was passed by Congress to protect and conserve the U.S.' native plants and animals and their habitats that are in danger of becoming extinct. Section 9 of the ESA makes it unlawful for a person to take a listed species. Under the ESA, "take" is defined as follows:

> … to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Section 10 of the ESA allows for a habitat conservation plan for endangered species on private lands or for the maintenance of facilities on private lands. Private landowners who develop and implement approved habitat conservation plans can receive incidental take permits that allow their development to proceed.

While the MBTA has no provisions for allowing take, the U.S. Fish and Wildlife Service (FWS) realizes some birds will be killed even if all reasonable measures to avoid it are implemented. The FWS Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement and by fostering relationships with individuals, companies, and industries that have programs to minimize their impacts on migratory birds. Since a take cannot be authorized, it is not possible to absolve companies from liability even if they implement avian mortality avoidance measures. However, the Office of Law Enforcement does have enforcement discretion and focuses on those individuals, companies, or agencies that take migratory birds without regard for their actions and the law, especially when conservation measures have been developed but are not implemented.

Required Permits

IPC applies for and maintains permits, as required by law, for the possession and transport of protected avian species. Permits are required from the FWS, Idaho Department of Fish and Game (IDFG), the Oregon Department of Fish and Wildlife (ODFW), and the Nevada Department of Wildlife (NDW). Permits are valid for permittee and authorized subpermittees and any person who is employed by, or under contract to, IPC for the activities specified in this permit.

Conditions and authorizations of these permits include the following:

1. Compliance with all federal and state laws.

2. The permit must be carried and displayed, upon request, when conducting any authorized activity.

3. Authorization to take, transport, and relocate nests (containing eggs or chicks) of migratory birds from transformers and conductors when the threat of fire hazard and power outages is present and imminent at the current nest location. The FWS non-migratory bird office shall be notified within 72 hours of an active nest relocation, giving the location and details on relocation. This does not include the relocation of bald and golden eagle nests, nests of species listed as threatened or endangered under the ESA, or nests relocated for reasons other than imminent fire hazard or power outage.

4. Authorization to pick up and bury carcasses and partial remains of migratory birds. Authorization to pick up dead bald or golden eagles and turn them over to the state fish and game department or FWS Law Enforcement Office so they can be forwarded to the National Eagle Repository in Colorado. Authorized to transport eagle to a freezer or temporary storage until it can be turned over to state or federal personnel.

Injured birds must be picked up and transferred to a federally permitted wildlife rehabilitation center. Each permit includes a comprehensive list of stipulations and authorizations. The removal or relocation of an active or inactive eagle nest is not allowed. A special permit is required from the FWS prior to any action being taken. IPC submits an annual report to the FWS, IDFG, ODFW, and NDW documenting all birds collected by IPC as part of IPC's reporting requirements for special-use (salvage) permits. IPC works closely with the FWS, including their Office of Law Enforcement in Boise and the Alternative Energy Program lead in the Boise office, and the Region 1 FWS Migratory Bird Permit Office, in Portland, Oregon, to report raptor mortalities, turn over carcasses, communicate about retrofits performed in response to those mortalities, document proactive actions to prevent electrocutions and collisions, and discuss ongoing avian protection activities and resolve issues as they arise.

ELECTROCUTION

Biological Aspects

Birds are electrocuted when they make contact between 2 energized conductors or between an energized conductor and grounded hardware, thereby providing a pathway for electricity to flow between 2 points of contact. Many factors influence electrocution risk including 1) body size, 2) habitat, 3) age, 4) weather, and 5) powerline configurations with inadequately spaced conductors and/or ground wires.

Birds with large wingspans, such as eagles, are more susceptible to electrocution than smaller birds. However, small birds can be electrocuted on transformers or other poles with tightly spaced hardware. Power poles located in open habitats lacking natural perches provide sites for hunting, feeding, resting, roosting, and nesting. Birds using these structures have a greater electrocution risk. Habitats with a large prey base are attractive to raptors. Powerline structures located in these areas have increased use and, therefore, increased electrocution risk.
Young birds are less adept at taking off and landing on power poles and may choose more dangerous locations on a pole, increasing their risk. Wet weather can increase electrocution risk, since wet feathers are electrically more conductive than dry feathers and can elicit wing spreading behavior.

Construction Design Guidelines

New and Rebuild

IPC requires that new or rebuilt lines are built according to avian-safe guidelines. IPC has developed a map delineating 3 zones with differing, raptor-safe construction guidelines (Figure 1):

- **Zone 1**: No raptor restrictions (city limits)

- **Zone 2**: A 40-inch separation between conductors or between conductors and grounded parts where hawks and owls are potentially present (large agricultural areas)

- **Zone 3**: A 60-inch separation between conductors or between conductors and grounded parts where eagles are likely to be present (i.e., rangeland, agricultural land surrounded by rangeland or shrub steppe vegetation, federal land, and 0.25 miles from all rivers and major bodies of water [based on a modeled golden and bald eagle distribution]).

The 60-inch separation between energized and/or grounded parts is intended to allow sufficient clearance to accommodate an eagle's wrist-to-wrist span (APLIC 2006). APLIC (2006) noted that, in areas where eagles do not occur, 40 inches provides adequate separation for raptors other than eagles.

Any new line extensions or rebuilds in Zone 3 or eagle-use areas, such as rangeland or on federal land, shall use construction with at least 60 inches of spacing between conductors or between conductors and grounded hardware. If such spacing is not possible, energized parts and hardware must be covered to prevent bird electrocutions.

Areas where eagles are not found but other raptors, such as hawks and owls, are present require at least 40 inches of spacing between conductors or between conductors and grounded hardware. This area includes large blocks of agricultural land outside the city limits. The major difference between the 2 areas relates to tangent structures. The 40 inches of separation allows the use of 8-foot-wide crossarms. For exceptions to the 60-inch standard, see Appendix 1.

IPC has an established set of construction design guidelines for raptor-use areas (see the *Overhead Manual* and the *Transmission Manual*). Engineering diagrams for each type of distribution structure used at IPC are classified as either Zone 1—Not Avian Protected, Zone 2—40-inch Guideline, or Zone 3—60-inch Guideline. If a structure is not considered raptor safe modifications must be made to make the structure raptor-safe in raptor-use areas.

Retrofitting Existing Lines for Raptors

Structure modification may be necessary when dead and/or injured protected birds are found under powerline structures. Retrofitting to prevent electrocutions can include the following:

1. Reframing (lowering the crossarm, changing to a 10-foot-wide arm, or adding a pole top extension)

2. Covering jumper wires, conductors, and equipment

3. Discouraging perching in unsafe locations

4. Modifying ground wires (moving/removing grounds, adding a down-guy insulator)

5. Replacing a structure or equipment

6. Providing a perch above energized wires (recommended in combination with diverters)

In some cases, bird mortalities are found under or near IPC's powerline structures, but no retrofit is required due to the identified cause of death. Examples include gunshot mortality, single-incident collision mid-span, and carcasses (resulting from collisions with vehicles) landing near IPC's poles. The cause of death can be difficult to determine. In a study conducted in southwestern Idaho, 44 birds found under powerline structures were necropsied, and no cause of death could be determined for 45% of these birds (B. Lehman, U.S. Geological Survey [USGS], unpubl. data). When no cause of death can be determined, IPC may retrofit the pole if it does not meet raptor-safe standards.

Tracking Avian Protection Costs

IPC has been asked by the FWS to provide an accounting of annual expenditures for raptor and bird protection activities across its service area. To provide accurate accounting, all operation and maintenance (O&M) retrofits of distribution feeders and transmission lines are tracked separately.

Examples of work that shall be tracked by the avian protection program include the following:

1. Installation of osprey (*Pandion haliaetus*) platforms
2. Modification of poles associated with a raptor mortality
3. Installation of bird flight diverters/markers to prevent bird collisions
4. Proactive installation of bird guards to prevent squirrel/bird outages
5. Proactive modification of existing poles considered to have a high risk of electrocution.

Evaluation of Avian Protection Equipment

The wildlife protection equipment industry is a developing industry. Therefore, some products have not been tested thoroughly enough to ensure durability, effectiveness, and ease of installation. The Manual Review Committee meets semi-annually to discuss and evaluate changes to construction manuals and provide feedback on new and existing materials. The committee is composed of a cross-section of IPC Delivery employees, including linemen, line crew foremen, Methods and Materials (M&M) engineers, distribution designers, and skills instructors. This committee also provides feedback on wildlife protection equipment, such as conductor covers, cutout covers, triangle diverters with different attachment types, and collision markers, such as the Firefly™ Bird Flapper.

Feedback is also solicited on the effectiveness of avian protection equipment and any problems associated with the equipment during avian protection training. This feedback is used to refine installation protocols, identify problem products, replace problem products with products that have increased durability and ease of application, and compile information to evaluate the effectiveness of various retrofit measures.

POWERLINE COLLISIONS

Biological Aspects

Many factors influence the incidence of bird collisions with powerlines. Large, less maneuverable birds, such as pelicans (*Pelecanus erythrorhynchos*), Canada geese (*Branta canadensis*), and species that fly at high speeds and low altitudes, are frequently involved in collisions. Powerlines located in areas with high concentrations of birds due to ponds, reservoirs, and rivers show an increased risk of collision incidence. A primary factor in collision is whether and how often birds in flight must cross a powerline within their daily use area.

Procedures

All birds suspected of having collided with a powerline and causing an outage should be recorded in the Outage Management System (OMS) as a bird-caused outage, identifying collision as the cause. If the collision involved a raptor, it should be reported to IPC's Environmental Affairs department using the *Bird Mortality Report* form (Appendix 2) within 5 business days of discovery of the incident.

When siting a new line, planners shall consider the proximity of the line to high bird-use areas, vegetation that may attract birds, and topographical features that affect local and migratory movements. If a line is identified as having significant collision risk, remedial solutions shall be evaluated. The risk of collision may be reduced or eliminated by burying the line, relocating or reconfiguring the line, removing the overhead shield wire, or by marking the line to increase its visibility. Burying, relocating, or reconfiguring the line can be costly, but these solutions may be appropriate in some circumstances. Removing the shield wire may not be feasible for multiple spans due to operational or safety concerns but may be an option (subject to engineering constraints) when only a single span is involved. Research has shown that marking a line to increase its visibility can significantly reduce collision incidences. A variety of devices (i.e., marker balls, bird flight diverters, and/or Firefly Bird Flappers) are available to increase the visibility of both conductors and shield wires. For recommendations regarding the use of marking devices and remedial actions, contact IPC's Environmental Affairs department. Specific procedures are documented in internal IPC design manuals for approved marking products.

Site-Specific Evaluations

Collision sites may be identified through reports from line personnel, biologists, federal or state agencies, or the public. When a site is identified as having reoccurring collisions, a biologist will interview the person reporting the incident to collect information about the scope and magnitude of the collision problem. Depending on the nature of the collision problem, the site will be visited to determine the spans involved in the collisions, what species are using the site, and the species involved in the collisions. The biologist will evaluate topography that may affect local and migratory bird movements, distance to rivers or other bodies of water, and vegetation that may attract the birds. The biologist will also walk the line looking for additional carcasses or

signs of past carcasses. Outage reports will be evaluated to find any past outages attributed to collision.

After the initial evaluation, the biologist will make recommendations for further action, if necessary. Potential recommendations could include, but are not limited to, marking the conducting or static wires with markers (such as bird flight diverters or Firefly Bird Flappers); removing static wire; or recommending additional studies.

NEST MANAGEMENT

Nesting Platforms

Nesting platforms have proven to be valuable tools—in terms of reducing outages, protecting nesting birds, and increasing positive publicity—in dealing with problem raptor nests on power poles.

The osprey is the most common raptor using power poles for nesting; however, red-tailed hawk (*Buteo jamaicensis*), golden eagle, and ferruginous hawk nests are also occasionally found. Locating a vacant raptor nest during the non-breeding season provides an ideal opportunity to take preventive action before a problem develops; it is relatively simple to relocate a nest when birds are not present. A nest should be relocated, preferably on a nesting platform at a non-energized pole, near the pole on which the nest was originally situated. The new nest platform should be as tall as, or taller than, the existing pole. In some cases, a new pole cannot be installed, so a nest platform is placed above the crossarm. Securing a nest above energized equipment is not encouraged because birds are likely to drop nesting materials that could cause a fire or outage. Nest discouragers may need to be installed on the original nest pole to prevent birds from rebuilding.

Eagles and Endangered/Threatened Species' Nests

All eagles or endangered/threatened species' nests are protected by federal laws, regardless of whether the nest is active or inactive. Although an eagle nest on a powerline structure is uncommon, if a problem nest is suspected to be that of an eagle, IPC's Environmental Affairs department must be contacted prior to taking any action.

Inactive Nests

If a raptor pair is merely building a nest, or if a nest is unoccupied, the nest is considered inactive. It is then permissible to dismantle the nest and install a nesting platform or other necessary devices to prevent unwanted interactions between the birds and the electrical structure.

Active Nests

If a nest is occupied and contains eggs or chicks, it is considered active, and **disturbance is only permitted** when the threat of fire hazard and power outages is present and imminent at the current nest location. When an active nest must be moved, IPC's Environmental Affairs department (208-388-2979) should be notified immediately. All nests that are moved or

removed must be reported to Environmental Affairs and the FWS within 72 hours of the action being taken.

Line Maintenance Activities

Maintenance work at transmission structures conducted during the bird breeding season may require additional evaluation and operations to reduce impacts to migratory bird species. The breeding season for birds can range from February 1 through September 1, but most species nest between March 15 and July 31. Maintenance must be conducted regularly to ensure reliable power delivery and that powerlines meet North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) mandatory requirements. Because the bird breeding season extends for much of the year, maintenance must occasionally occur when birds are nesting due to outage constraints, crew availability, and winter access constraints. To minimize impacts to migratory bird species protected by the MBTA and challenges surveying for their nests, IPC will implement best-management practices (BMP) to reduce potential impacts to migratory birds. For raptors, IPC will survey nests prior to maintenance activities and/or implement BMPs depending on the situation and level of maintenance occurring.

Line Maintenance and Raptors

IPC reviews each maintenance project to determine if it can be scheduled outside raptor breeding season. When maintenance work must be conducted during the breeding season, biologists conduct surveys as close as possible to the start of O&M activities, but no more than 3 weeks prior to the start of work, to identify locations of raptor nests on IPC structures or in surrounding vegetation, trees, or cliffs. For raptors nesting on IPC facilities, activities causing the adults to flush from the nest will be delayed until after young have fledged, except in emergency situations. For raptors nesting in surrounding trees, cliffs, or on IPC structures near work being conducted, spatial buffers will be used to avoid disturbance at the nest. If a nest falls within the spatial buffer, work causing the adults to flush will be delayed until after the young fledge. The distance may be reduced on a case-by-case basis if site-specific conditions, such as topography, prevent the maintenance work from being visible from the nest or if a major disturbance, such as a freeway, is located between, or adjacent to, the maintenance work and the nest. Spatial buffers are defined in Table 1 by species. No buffers are required outside the breeding season (i.e., when the nest is inactive).

Line Maintenance and Migratory Birds

BMPs will be implemented to reduce impacts to nesting migratory birds, including 1) driving on established roads and trails within the ROW boundary, 2) minimizing vegetation clearing or disturbance, and 3) being alert to nesting birds to avoid destroying nests. While accessing sites to conduct routine O&M[1], IPC will travel on established access and service roads, 2-track or

[1] Routine O&M is defined in BLM Master Agreement BLM-MA-ID-001.

off-highway vehicle (OHV) trails, and maintenance routes while using an OHV or a pick-up truck. If the site cannot be accessed by these means, crews will walk to the site. The defined routine O&M activities may occur on a regular or infrequent basis; may be completed in 1 day or span multiple days; and may damage vegetation and soil within previously disturbed areas (i.e., roads, trails, maintenance routes, structure pads) within the ROW boundary (see BLM Master Agreement, 2012, for additional information on routine maintenance). For maintenance that requires equipment to be driven off established roads or trails to gain access to a structure, the area will be walked to determine the path the equipment will follow, and if a bird is flushed in the area, the proposed access path will either be avoided or searched to determine if a nest is present. If a nest is found, a different route will be chosen.

Table 1
Nesting period and spatial buffers of selected raptor species

Species	Nesting Period Range	Average Nesting Period	Spatial Buffer (miles)
Golden eagle (*Aquila chrysaetos*)	8 Feb–10 Jul	2 Mar–16 Jun	0.50
Bald eagle (*Haliaeetus leucocephalus*)	1 Feb–15 Aug	2 Mar–15 Jul	0.50
Ferruginous hawk (*Buteo regalis*)	22 Mar–16 Jul	13 Apr–28 Jun	0.50
Great-horned owl (*Bubo virginianus*)	15 Jan–7 Jun	20 Feb–11 May	0.25
Burrowing Owl (*Athene cunicularia*)	10 Apr–5 Aug	30 Apr–12 Jul	0.25
Swainson's hawk (*Buteo swainsoni*)	20 Apr–14 Aug	8 May–21 Jul	0.25
Prairie falcon (*Falco mexicanus*)	1 Apr–16 Jul	14 Apr–24 Jul	0.50
Peregrine falcon (*Falco peregrinus*)	15 Mar–14 Jul	15 Apr–28 Jul	0.50
Northern goshawk (*Accipter gentilis*)	15 Apr–17 Jul	1 May–7 Jul	0.50
Osprey (*Pandion haliaetus*)	1 Apr–15 Aug	15 Apr–30 Jul	0.25
Red-tailed hawk (*Buteo jamicensis*)	18 Mar–20 Jul	11 Apr–25 Jun	0.25

Training

IPC will provide training once every other year to project line crews, project managers, and construction inspectors outlining BMPs when working during the migratory bird breeding season. Training will focus on reasons for the program (i.e., why this work is important for migratory birds, compliance with existing laws, and IPC's environmental stewardship policy). Training will instruct on BMPs for protecting migratory birds including 1) driving on established roads and trails within the ROW boundary, 2) minimizing vegetation clearing or disturbance, 3) following temporal or spatial buffer guidelines for raptor nests, and 4) being alert to nesting birds in order to avoid destroying nests. Training will also provide information on 1) detecting bird nests (looking for whitewash, flushing birds), 2) types of nests that may be encountered, 3) habitats where nests are most likely to occur, and 4) typical nesting periods for bird species that may be encountered. In addition, environmental stipulations for a project will be provided to each crew prior to initiation of work.

If IPC uses a contractor to perform routine O&M activities, the project manager and/or construction inspector will be responsible for ensuring the contractor understands and is implementing the requirements. IPC biologists may conduct on-site inspections and training to ensure contractors are following these requirements.

Vegetation Management

IPC employees annually inspect the company's powerline corridors across IPC's service area to determine what vegetation management is needed. Vegetation management is conducted regularly to ensure powerlines meet NERC and WECC mandatory requirements; provide safe access for crews when they conduct inspection and maintenance activities; and minimize the potential for wild land fires. Crews remove vegetation within the right-of-way (ROW) that currently, or could potentially, interfere with safe operation of the line. Crews also remove hazard trees—trees that occur outside the ROW but pose an imminent risk of falling into lines or structures—that could result in an outage and/or ignition source.

Line-Clearing Procedures Addressing the MBTA

Line-clearing crews will inspect shrubs, trees, and hazard trees to be trimmed or removed for active bird nests prior to cutting. If a cavity is found, a flash photo will be taken inside the cavity to determine if the cavity is occupied. If an active nest is found, the location will be noted and provided to the IPC arborist in charge. If the vegetation is an imminent threat to public health and safety, the arborist will contact the avian protection coordinator, who will contact the FWS for appropriate permits allowing the nest to be moved or destroyed. If there is not an imminent threat and the vegetation must be trimmed prior to the next vegetation management cycle, the arborist will schedule it to be treated after the nesting season. If ROW clearing is to be expanded into previously untreated vegetation, a nesting survey would be coordinated by Environmental Affairs prior to clearing. Based on the results of the survey, a treatment plan would be developed to protect active nests.

Training

IPC will provide annual training to foresters/arborists and contract line-clearing crews to identify and protect nests consistent with the MBTA. Training will focus on reasons for the program (i.e., why this work is important for migratory birds, compliance with existing laws, and IPC's environmental stewardship policy). Training will include what to look for when inspecting trees prior to trimming: 1) whitewash (concentrations of white-colored droppings, 2) types of nests that may be encountered, 3) habitats where nests are most likely to occur, and 4) typical nesting periods for bird species that may be encountered. Training will also outline procedures to follow if a nest is found.

INJURED BIRDS

When a customer contacts IPC regarding a live bird caught in IPC's hardware, one of the rehabilitators in the Contact Lists section of this document should be contacted. In addition, the local IDFG or ODFW office and IPC's Environmental Affairs department (208-388-2979,

cell 208-861-4605) should be notified of the situation. Most often, the rehabilitators can meet a line crew at the site to examine the bird. If the bird is not injured, it will be put back into the nest or released immediately. If the bird is injured, the rehabilitator can take possession of the bird and care for it until it can be released. If a rehabilitator cannot be located, the local IDFG or ODFW office should be contacted for further information.

If the bird is dead, IPC Lines personnel should remove it from the hardware. A *Bird Mortality Report* form should be filled out and IPC's Environmental Affairs department contacted. Non-eagle specimens found near IPC transmission and distribution lines may be buried on-site or transported to a landfill. All eagle specimens must be collected by the Environmental Affairs department and turned over quarterly to the FWS special agent. At remote areas within the IPC service area, eagles may be turned over to the local IDFG or ODFW office.

Contact Lists

Tables 2 through 4 contain contact information for local wildlife agencies and raptor rehabilitators licensed through the state and federal governments to handle and care for injured hawks, eagles, owls, and osprey (raptors). The following contact lists are included:

- Licensed rehabilitators
- IDFG
- ODFW

Table 2
Licensed rehabilitators

Name	Contact Number	Address
Boise		
Cathie Havlina[1]	208-336-1218 719-251-6776	
Toni Bastidia-Hicks	208-345-0559	1602 Jefferson, Boise, ID 83712
Animals in Distress	208-338-0897	
Mady Rothchild	208-344-0468	2201 W. Boise Ave., Boise, ID 83706
Burley		
Tim Ferguson	208-677-2116	88 E. 500 S., Burley, ID 83318
Eagle		
Diana Siterides	208-939-5485	105 W. Rush Court, Eagle, ID 83616
Fruitland		
Keith Schuller[1]	208-452-3377	
Garden Valley		
Janelle Morosco-Leezer	208-462-3588 (w) 208-384-3421	HC 76, Box 2546, Garden Valley, ID 83622

Table 2 (cont.)

Name	Contact Number	Address
Idaho City		
Joan Marston	208-392-4976	2517 Centerville Rd., Centerville, ID 83622
Idaho Falls		
Jim Porter	208-589-1504	
Kimberly		
Julie Randell[1]	208-423-4268	3952 N. 3600 E., Kimberly, ID 83341
Kuna		
Morgan Peters	812-219-8866	
McCall		
Janet Star		
Long Valley Vet Clinic	208-634-2660	P.O. Box 885, McCall, ID 83638
Snowden Wildlife Sanctuary[1]	208-634-8050	P.O. Box 1731, McCall, ID 83638
Middleton		
James McKinley	208-585-2203	24979 Hartley Lane, Middleton, ID 83644
Lucy Nickerson	208-585-6160	27497 Middleton Rd., Middleton, ID 83644
Nampa		
Monte Tish[1]	208-697-3910	407 5th Ave., Nampa, ID 83651
Daniel and Stephanie Gossett	208-465-8059 208-385-4137 (w) 208-385-3329 (w)	4910 Health Way, Nampa, ID 83687
Oakley		
Miriam Austin	208-436-1562	P.O. Box 65, Oakley, ID 83346
Salmon		
Linda Cohen	208-894-2478	
Wendell		
Debra Nichols	208-536-5670	3577 S. 1500 E., Wendell, ID 83355

[1] Holds Federal Rehabilitation Permit

Table 3
IDFG contact list

Location	Address	Contact Number	Fax
Headquarters/Boise	600 S. Walnut P.O. Box 25 Boise, ID 83707	208-334-3700	208-334-2114 or 208 334-2148
Southwest Region/Nampa	3101 S. Powerline Road Nampa, ID 83686	208-465-8465	208-465-8467
McCall	555 Deinhard Lane McCall, ID 83638	208-634-8137	208-634-4320
Magic Valley Region/Jerome	868 East Main Street P.O. Box 428 Jerome, ID 83338	208-324-4350	208-324-1160
Southeast Region/Pocatello	1345 Barton Road Pocatello, ID 83204	208-232-4703	208-233-6430
Upper Snake Region/Idaho Falls	1515 Lincoln Road Idaho Falls, ID 83401	208-525-7290	208-523-7604
Salmon Region	1214 Hwy 93 N. P.O. Box 1336 Salmon, ID 83467	208-756-2271	208-756-6274

Table 4
ODFW contact list

Location	Contact Number
Ontario	541-889-6975
LaGrande	541-963-2138
Baker City	541-523-5832

TRAINING

Training Requirements

Training procedures are identified in the *Avian Protection Procedures*. Training IPC employees is a key element for effective implementation of this APP. All appropriate IPC employees, including managers, supervisors, line crews, dispatch, engineering, and design personnel shall receive training to implement this APP. Training is documented through IPC's Performance Management System, which documents attendance, scheduling, and course content through lesson plans.

Training will be conducted at operations centers with appropriate employees. This training will consist of an overview of the reasons for the program; the procedure for reporting raptor mortalities, including communication of 5-day reporting period and 90-day retrofit period;

avian safe guidelines for new construction and retrofitting; procedures for nest management and collision; and current wildlife protection products used by IPC. Computer-based training will be available to non-field employees and those unable to attend training at the operations centers. Training will be conducted once every 2 years.

Training Plan

Training requirements identified previously will be tracked through the Performance Management System.

Ongoing Communication and Awareness

Communication and awareness of existing compliance requirements is achieved by the aforementioned training. Any new requirements will be delivered by management and incorporated into the existing training programs and LMS as required.

MORTALITY DATABASE

IPC's Raptor Mortality Database was initiated in 1972. In earlier years, reports were primarily from federal or state agencies. Since then, the majority of reports have come from internal sources. The mortality database is managed to track bird mortalities and allows query and analyses of these records to help identify problem lines or regions.

IPC patrolmen typically visit all transmission lines biannually and all distribution lines at least once every 3 years to identify repairs needed and report raptor mortalities found. When outages are identified, lineman that are on-call to restore power identify the cause of the outage and report mortalities found. Upon discovery of a powerline-related mortality, a completed *Bird Mortality Report* must be sent to IPC's Environmental Affairs department within 5 business days. Subsequent structural retrofits must be completed within 90 days for distribution and 180 days for transmission of receipt of the *Bird Mortality Report* by Environmental Affairs unless an extension is granted by the avian protection coordinator.

Mortality records are entered into an Excel spreadsheet and reported annually to the FWS, IDFG, NDW, and ODFW. Information collected on this form includes the following:

1. Location of the mortality
2. Identification of the bird
3. Habitat associated with the mortality
4. Cause of death
5. Pole type, configuration, and hardware present on the pole
6. Modifications made

OUTAGE REPORTING

Animal- and bird-caused outages are costly. Bird-related outages have been reported to cause 1 to 25% of all outages (APLIC 2006). Bird-related outages can impact power reliability and increase utility costs. Costs associated with outages include 1) lost sales of electric power during outages, 2) restoration of power outages and repair of equipment damaged during outages, 3) labor for removing nests and other mitigation measures, 4) indirect costs for utility management of outages and bird protection, and 5) customer loss of service resulting in inconvenience or possible serious risk to their safety or health.

Bird-related outages may occur due to an avian electrocution or collision. However, there are several causes of bird-related outages that do not result in the death of a bird. For example, bird nest debris may cause outages without harming nesting birds; large flocks of birds sitting on a conductor can weigh the conductor down, causing it to gallop when the flock flushes; birds dropping prey or nesting material on energized lines can complete a circuit; or bird streamers or contamination of equipment due to accumulated feces may create an arc.

A number of bird-related outages may involve unprotected species (i.e., starling, house sparrow, and rock dove), but raptors and other protected species also are involved in outages. According to an assessment of 2,174 bird-related outages in the western U.S., 60% were due to non-protected birds; 21% were attributed to protected bird deaths; 12% were suspected as bird-caused, although no carcasses were found (e.g., flocks flushing lines); and 7% were due to bird nests not associated with a mortality (PacifiCorp, unpubl. data, taken from APLIC 2006).

When a bird-related outage occurs, dispatchers and linemen shall record as much detail as possible in the outage reports. When known, the species shall be recorded (if the species is unknown, the identity shall be noted as small bird, hawk, waterfowl, etc.) along with the cause of outage (bird electrocution, bird collision, nesting material, excrement, flock flushing, etc.). This information is useful in identifying outage trends, such as equipment or pole types commonly involved in bird-related outages, species frequently involved, and specific areas or feeders with high outage incidence due to bird activity. Analyses of these trends will help reduce outages in the future.

All large birds (e.g., raptors, pelicans, ravens) shall be recorded in the outage reporting system, and a raptor mortality report form shall be sent to IPC's Environmental Affairs department. Small bird species (e.g., starlings) need to be reported only in the outage reporting system. Individual feeders will be evaluated to determine necessary retrofits.

RISK ASSESSMENT

Avian Protection Risk Assessment

IPC will annually evaluate a targeted subset of poles for the risk of avian electrocution. Surveys will be conducted to evaluate structure configuration, evidence of avian activity, and the presence of dead birds or nests.

Risk assessment procedures can be useful aids when deciding where to allocate limited dollars over large geographic areas. Risk assessments will be targeted in areas with recent raptor mortalities to quickly address issues as they arise.

Trained observers walk the ROWs recording data on structure configuration, evidence of avian activity (whitewash, pellets, prey remains, raptor observed using pole) and the presence of dead birds. Observers will search a radius of 15 feet around each pole for carcasses and evidence of bird activity and walk under the line between poles to search for potential victims of collision. At each pole, the observer will record the GISO number, habitat type, pole configuration, mortality (a separate *Bird Mortality Report* form will be recorded for each mortality), live species observed and the presence of nests and will assess whether the structure is avian-safe. Notes may be recorded in the comments field about topographical features (pole at the highest point), ground squirrel colonies, nearby nests, and other notable features. Scores will be assigned to each non-avian safe pole based on evidence of raptor use, presence of raptor nests, and structure configuration.

After the completion of the feeder risk assessment survey, structures with mortalities will be retrofitted within the prescribed timeframe, while structures with high risk scores will be prioritized for retrofitting based on their relative risk. Additional risk assessment procedures are identified in the *Avian Protection Procedures*.

IPC is developing a model using a geographic information system (GIS) to identify highest priority areas for conducting surveys and retrofits. The model uses habitat layers, historic and recent raptor mortalities, known nest locations, and draft IDFG modeled golden eagle potential nesting sites to rank poles and areas of highest risk. The model will be validated and refined using collected risk assessment data.

COMMUNITY EDUCATION

IPC provides information to the public through presentations at service clubs, schools, and community organizations. During the 2005 to 2006 school year, community education representatives made presentations to nearly 66,500 people. IPC developed a new presentation specifically on raptors and raptor protection that was rolled out during the 2007 to 2008 school year. These presentations may encourage the public to report bird mortalities and may also encourage them to seek assistance for birds injured in powerline-related accidents.

IPC developed a new avian protection brochure in 2010 to educate the public about our raptor protection efforts. This booklet is available on our website at http://www.idahopower.com/pdfs/ourEnvironment/brochures/BirdBook.pdf.

ACKNOWLEDGEMENTS

Thanks to Brian Liberty of IPC's GIS department for developing the GIS map for avian protection zones. Thanks also to Rich Canderan, Jun Golo, Ben Hendry, Chris Potter, and Tim Phillips of IPC's Methods and Materials department for their efforts in developing the construction design guidelines and to operations center personnel for their input and feedback that went into the development of this plan.

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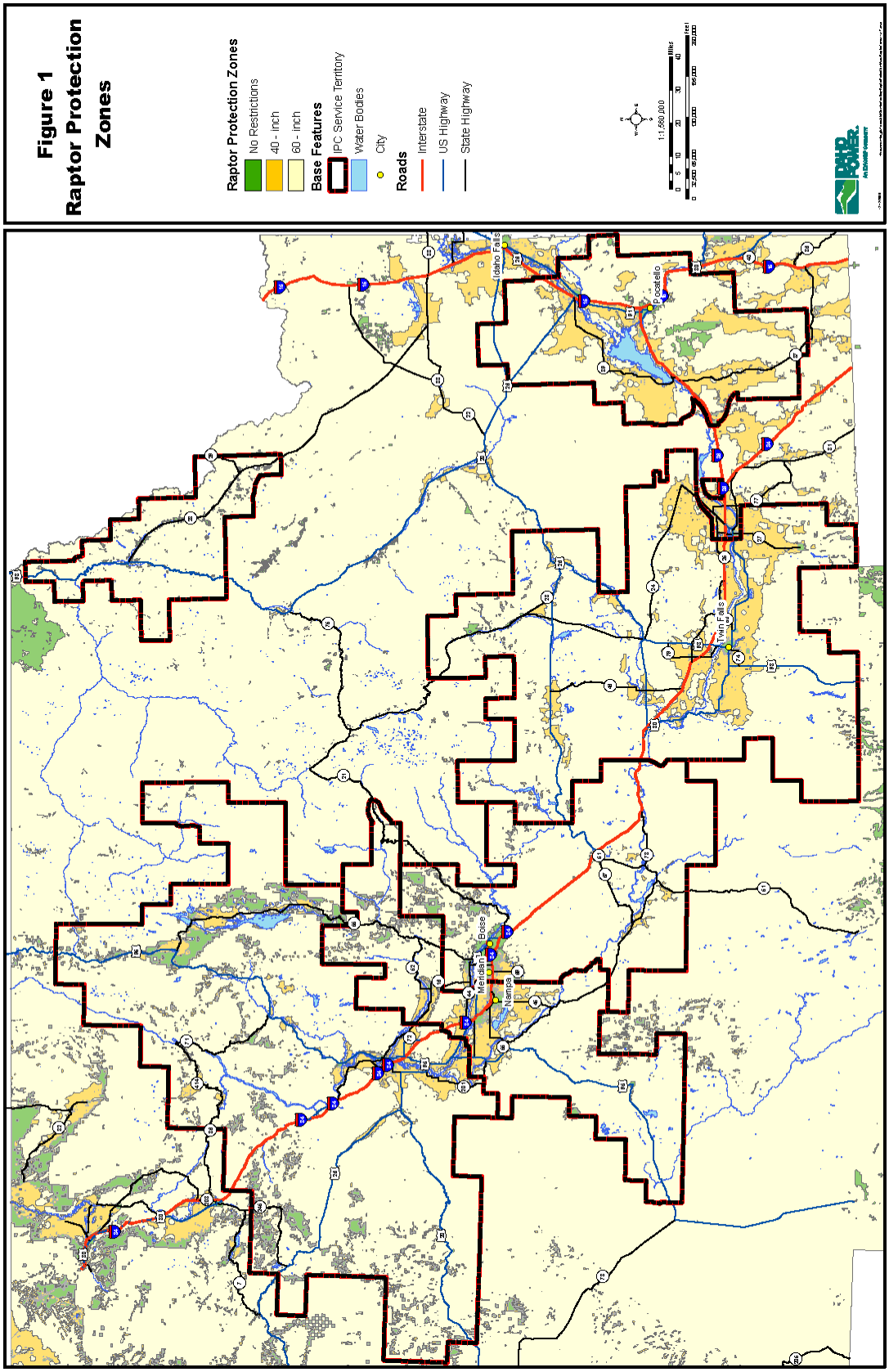

Figure 1
Map showing raptor-use areas

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Appendix 1
Exceptions to the 60-inch design guidelines

EXCEPTIONS TO THE 60-INCH DESIGN GUIDELINES

In the 1970s, Morley Nelson evaluated the electrocution risk of eagles to identify configurations and voltages that could electrocute birds. Because bird feathers provide insulation when dry, contact must typically be made with fleshy parts, such as the skin, feet, or bill. Nelson determined that 60 inches of spacing is necessary to accommodate the wrist-to-wrist distance of an eagle. As a result, a 60-inch separation has been widely accepted as the standard for eagle protection since the 1975 edition of *Suggested Practices for Raptor Protection*.
Although wingspans can measure up to 7.5 feet for golden eagles and 8 feet for bald eagles, the distance between fleshy parts (wrist to wrist) is less than 60 inches. Wrist-to-wrist measurements are available in APLIC (2006); the maximum wrist to-wrist distance for golden eagles was 42 inches and the largest wrist-to-wrist distance for bald eagles was 34 inches.
The maximum wingspans for common hawks and owls in Idaho Power Company's (IPC) service area as reported in APLIC (2006) were 56 inches for red-tailed hawk, 54 inches for Swainson's hawk, 56 inches for the rough legged hawk, and 51 inches for the great-horned owl.

IPC's design guidelines use the 60-inch separation standard as the basis for its eagle-safe designs. However, in a limited set of circumstances, IPC makes an exception to the 60-inch spacing standard.

Triangular–Hi-Lite Structure

The triangular–Hi-Lite (TR–HL) structure is the preferred method to build a 138-kilovolt (kV) triangular configuration with polymer Hi-Lite insulators. This structure is also used for new 69-kV lines in raptor areas. It is used for tangent construction where no angles are involved and where a shield wire is not required. Although the horizontal post insulator is 60 inches long, the 60 inches includes the mounting base—which is grounded—and suspension clamp—which is energized. The spacing from energized conductor to grounded base is only 49 inches.

While the TR–HL does not meet the 60-inch standard, IPC believes it meets the intent of the 60 inches of spacing recommended by APLIC (2006). The 49 inches is much greater than the maximum wrist-to-wrist distance found for eagles (42 inches). In addition, IPC has never had a mortality reported on this type of construction and is not aware of other utilities having electrocutions on this type of construction (Sherry Ligouri, PacifiCorp, pers. comm.; Mike Best, Pacific Gas and Electric Company [PG&E], pers. comm.). Therefore, IPC believes the 49 inches of spacing affords birds adequate protection.

Distribution Rebuilds with Inadequate Pole Height

IPC is replacing insulator pins on distribution poles throughout its service area. As part of this work, the 7-foot, 8-inch crossarm is being replaced with a 10-foot arm. Most existing construction has the crossarm lowered 12 inches from the top of the pole. To achieve 60 inches of spacing with a 10-foot crossarm, the crossarm must be lowered 24 inches from the top of the pole. In some cases the pole is not tall enough or equipment is present that precludes lowering

the crossarm an additional 12 inches. A 10-foot crossarm lowered 12 inches provides a separation of 56 inches between conductors. IPC believes that, in the specific situation of existing poles where lowering the crossarm is precluded, 56 inches provides sufficient clearance for hawks and eagles and provides protection similar to a 60-inch clearance. The alternatives to attain the 60 inches of spacing would be to replace with a 7-foot, 8-inch crossarm and add an insulator cover. IPC believes the birds are better served by increasing the spacing between conductors rather than by adding a conductor cover.

Appendix 2
Bird mortality report

Office Use
Report # _____

Bird Mortality Report

Location

State	County	Report Date	Approx. Mortality Date	Date of Discovery
Legal Description *(Township Range Section or UTM)*			How was it found? ☐ Incidental ☐ Outage ☐ Carcass search ☐ Other	

Identification

Species *(Describe if necessary.)*	Number *(of carcasses)*	Age ☐ Adult ☐ Juv ☐ SubAd ☐ Unkn	Sex ☐ M ☐ F ☐ Unkn

Vegetation at Site
- ☐ Shrub/Grass
- ☐ Stream/River
- ☐ Forest
- ☐ AG/Farm
- ☐ Pasture
- ☐ Grassland
- ☐ Developed

Topography
- ☐ Hilly
- ☐ Flat
- ☐ Steep
- ☐ Cliff

Mort Source
- ☐ Electrocution
- ☐ Poss. Electro
- ☐ Collision
- ☐ Poss. Collision
- ☐ Entangled
- ☐ Other: _____
- ☐ Unknown
- ☐ Gunshot
- ☐ Predator

Body Condition
- ☐ Fresh Dead
- ☐ Dead (older than 1 day)
- ☐ Decomposed
- ☐ Desiccated

Body Description
- ☐ Carcass
- ☐ Parts
- ☐ Alive Sick
- ☐ Alive injured
- ☐ Art. Skeleton
- ☐ Feather spot
- ☐ Bones

Distance Carcass Located From… Pole *(ft)* _____ **… Nearest Road *(ft)*** _____

Line Type

☐ Distribution ☐ Transmission	Feeder or Line Number	Structure Number / GISO Number	Line Voltage

Pole Type
- ☐ Armless *(no crossarm)*
- ☐ Armless *(with apparatus)*
- ☐ Crossarm : Tangent
- ☐ Crossarm *(with additional apparatus)*
- ☐ Crossarm *(with guys or other hardware)*
- ☐ Corner, Angle, Dead end *(w/ jumpers)*
- ☐ Underbuilt
- ☐ Other *(describe below)*

Configuration
- ☐ Single Phase *(neutral up)*
- ☐ Single Phase *(neutral down)*
- ☐ Two Phase *(neutral up)*
- ☐ Two Phase *(neutral down)*
- ☐ Three Phase *(neutral up)*
- ☐ Three Phase *(neutral down)*
- ☐ Transmission *(with static)*
- ☐ Other *(describe below)*

Apparatus
- ☐ Transformer
- ☐ Arrestor
- ☐ Cutout
- ☐ Switch
- ☐ Regulator
- ☐ Capacitor
- ☐ Reclosure
- ☐ Jumper wires
- ☐ Bad insulator cover
- ☐ None

Did ground contribute to electrocution? ☐ No ☐ Yes

Crossarm length: ☐ 8 ft. ☐ 10 ft. ☐ 11 ft. ☐ Fiberglass ☐ Metal Brackets ☐ Armless ☐ Other *(describe below)*

Recommended Action

- ☐ Cover Jumpers
- ☐ Reframe Structure
- ☐ Move Grounds
- ☐ No Action
- ☐ Replace Structure
- ☐ Install Insulator Cover
- ☐ Install Switch cover
- ☐ Other *(describe below)*

Structure Modified: ☐ No ☐ Yes *(please explain)* **Carcass Disposition:** ☐ Buried ☐ Landfill ☐ Collected

Comments

Report Prepared By	Company / Agency	Phone Number

PSD 007 (4/14) CID# 20620 Send to Natalie Turley—CHQ-5. IPC

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