

Wildlife Survey Protocol for the Ruby Pipeline LLC



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1

Introduction

The purpose of this wildlife survey report is to outline the proposed survey protocols for the Ruby Pipeline Project LLC (Ruby). The report contains information regarding proposed sensitive species lists and survey protocols for the 2008 and 2009 biological survey field effort. Ruby requests that each federal and state agency approve, or provide recommended changes to Wildlife Survey Plan.

During the fall of 2007 and the first quarter of 2008, the United States Fish and Wildlife Service (USFWS) (the Service), Bureau of Land Management (BLM), Forest Service (FS), state Natural Heritage Programs (NHPs), and wildlife agencies were contacted to identify species and habitats of concern. After receiving the initial species and habitat information, Ruby gathered field survey protocols, which are presented in this document.

The survey protocols presented in this document are protocols established by the USFWS, Western Association of Fish and Wildlife Agencies (WAFWA), or from other publications. Based upon Ruby's initial meetings with agencies, three species specific surveys have been requested 1) pygmy rabbit surveys, 2) sage grouse lek utilization, and 3) raptor surveys. Other species survey protocols have been included for review by agencies if the initial surveys conducted in the spring/summer of 2008 identify suitable habitat for these species to occur, such as the black-footed ferret or mountain plover.

Biological field surveys along the proposed pipeline right-of-way (ROW) will be initiated on April 16, 2008. Site conditions (i.e., snow cover) are limiting the areas that are able to start surveys on April 16, 2008, therefore, surveys will be done in areas which are accessible, and have suitable site conditions to initiate biological surveys.

Initial surveys are expected to be completed by August 2008. These surveys will document lek site utilization, raptor nests, pygmy rabbits, noxious weeds, general wildlife occurrences, dominate habitat types, dominate plant species, and general birds observed during the surveys. If needed and/or requested by agencies, additional surveys will be conducted in 2009 where necessary to determine species occurrence in the appropriate season, to survey any pipeline reroutes, temporary extra workspace areas, pipe storage yards, and contractor yards, as well as pipeline segments where access was not previously available.

In addition, the project may also affect wetlands and waters of the United States. Surveys will be conducted concurrently with the ROW survey, and will comply with the United States Army Corps of Engineers (USACE) wetlands survey protocols. The individual USACE Districts along the proposed ROW include the Omaha, Nevada, Sacramento, and Portland districts. Additional field surveys will be conducted in 2009, where necessary, to complete survey requirements in each district, including reroutes and pipeline segments where access was not previously available.

Biological Species List

A species list was developed to include all federally listed threatened, endangered, and sensitive (TES) species occurring throughout each county along the pipeline route. The following resources were used to develop the list:

- Telephone consultations with BLM field offices, the Service, national forests, and state wildlife agencies;
- Natural Diversity Database or NHPs for each state; and
- BLM Resource Management Plans and National Forest (NF) Plans.

Once the master TES species list was developed for each state, each was reviewed for any species that could be eliminated based on habitat and elevation factors. Data compiled for the master lists would be narrowed down to those TES species dependent upon on the environment and habitat surrounding the pipeline project. Table 1 list these sensitive species that may occur along the Ruby pipeline route.

Table 1 Sensitive Species That May Occur Along The Ruby Pipeline Route

<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
WYOMING	UTAH	NEVADA	OREGON
BLM Sensitive Species – Kemmerer Field Office	Wasatch-Cache National Forest	Special Status Species That May Occur within the Winnemucca Resource Management Area	Special Status Species That May Occur within the Lakeview Resource Management Areas
Common Name	Common Name	Common Name	Common Name
Plants	Plants	Plants	Plants
Trelease's racemose milkvetch	Maguire's primrose	casick hyssop	lesser panicled sedge
entire-leaved peppergrass	white Fir	Lahontan milkvetch	native sedge
large-fruited bladderpod	Hopkin's tower-mustard	winged milkvetch	green-tinged paintbrush
western bladderpod	Wasatch rock-cress	sucksdorf milkvetch	desert chaenactis
prostrate bladderpod	Siberian aster	lonesome milkvetch	Crosby's buckwheat
beaver rim phlox	starvling milkvetch	Tiehm milkvetch	prostrate buckwheat
tufted twinpod	dainty moonwort	Osgood Mountain milkvetch	green buckwheat
Dorn's twinpod	giant helleborine	Barneby stemflower	Warner Mt. bedstraw
Mammals	Wasatch daisy	schoolcraft catseye	Boggs Lake hedge-hyssop
dwarf shrew	Nevada Sweetpea	windloving buckwheat	salt heliotrope
myotis, long-eared	Rydberg's musineon	Crosby buckwheat	baker's globe mallow
pygmy rabbit	Mogollon Lousewort	Lemmon buckwheat	Shockley's ivesia
white-tailed prairie dog	fibrous-stipuled pondweed	Lahontan Basin buckwheat	disappearing monkey flower
Idaho pocket-gopher	Rocky Mountain cinquefoil (Alpine cinquefoil)	rattlesnake stickseed	
Birds	Beckwith's violet	grimy ivesia	blue-leaved penstemon
white-faced ibis	brownie ladyslipper	Pueblo Valley peppergrass	playa phacelia
trumpeter swan	Burkes draba	Owyhee prickly phlox	desert allocarya
northern goshawk	Maguires draba	Succor Creek parsley	Oregon semaphoregrass
ferruginous hawk	Cronquist daisy	smooth stickleaf	profuse-flowered mesa mint
peregrine falcon	Logan buckwheat	sand cholla	Rafinesque's pondweed
greater sage-grouse	Cache beardtongue	Oryctes	Columbia cress
long-billed curlew	Cottams cinquefoil	Cordelia beardtonque	verrucose sea-purslane
yellow-billed cuckoo	Frank Smith Violet	Lahontan beardtongue	long-flowered snowberry
burrowing owl	Wheeler's angelica	Lahontan indigo bush	short-podded thelypody
sage thrasher	small yellow lady's slipper	Ravendale skullcap	Mammals
			pallid bat

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Table 1 Sensitive Species That May Occur Along The Ruby Pipeline Route

<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
WYOMING	UTAH	NEVADA	OREGON
loggerhead shrike	Mammals	Holmgren smelowskia	pygmy rabbit
Brewer's sparrow	Townsend's big-eared bat	Mammals	Birds
sage sparrow	fringed Myotis	American pika	tricolored blackbird
Amphibians	western small-footed myotis	big brown bat	greater sage-grouse (western)
northern leopard frog	Canada lynx	Brazilian free-tailed bat	American peregrine falcon
Great Basin spadefoot	wolverine	California myotis	bald eagle
Boreal toad	American pine marten	desert bighorn sheep	American white pelican
spotted frog	Idaho pocket gopher	fringed myotis	white-headed woodpecker
Fish	dwarf shrew	hoary bat	purple Martin
roundtail chub	Birds	little brown myotis	Amphibians
leatherside chub	sandhill crane	long-eared myotis	Columbia spotted frog
bluehead sucker	bald eagle	long-legged myotis	Reptiles
flannelmouth sucker	osprey	pallid bat	Northwestern pond turtle
Colorado River cutthroat trout	peregrine falcon	pygmy rabbit	Fish
bonneville cutthroat trout	flammulated owl	silver-haired bat	Warner sucker
fine-spotted Snake River cutthroat trout	Boreal owl	small-footed myotis	
	black swift	spotted bat	Oregon lakes tui chub
	broad-tailed hummingbird	Townsend's big-eared bat	Goose Lake tui chub
	Williamson's sapsucker	western pipistrelle bat	Goose Lake lamprey
	three-toed woodpecker	Birds	inland redband trout (all stocks)
	gray catbird	American white pelican	Foskett speckled dace
	Virginia's warbler	bald eagle	Mollusks
	American redstart	black tern	evening fieldslug
	Brewer's sparrow	bobolink	turban pebblesnail
	evening grosbeak	ferruginous hawk	western ridgemussel
	greater sage-grouse	flammulated owl	great basin ramshorn
	Lewis's woodpecker	golden eagle	highcap lanx
	northern goshawk	greater sage-grouse	scale lanx
	sharp-tailed grouse	Juniper titmouse	modoc rim sideband
	Fish	Lewis's woodpecker	montane peaclam
	bonneville cuthroat trout	loggerhead shrike	Archimedes springsnail
			lined ramshorn

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Table 1 Sensitive Species That May Occur Along The Ruby Pipeline Route

<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
WYOMING	UTAH	NEVADA	OREGON
	Amphibians	long-billed curlew	Insects
	Western toad	long-eared owl	Johnson's hairstreak
	Columbian spotted frog	northern goshawk	yuma skipper
	Reptiles	Pinyon jay	Special Status Species That May Occur within the Klamath Falls Resource Management Areas
			Common Name
	Snails and Mollusks	prairie falcon	Plants
		red-naped sapsucker	
	Department of Natural Resources, Division of Wildlife Resources	sandhill crane	Applegate's milk-vetch
	Common Name	short-eared owl	lesser panicled sedge
	Plants	Swainson's hawk	native sedge
	Maguire's primrose	vesper sparrow	green-tinged paintbrush
	Mammals	western burrowing owl	prostrate buckwheat
	white-tailed prairie dog	western yellow-billed cuckoo	green buckwheat
	brown/grizzly bear (extirpated)	white-faced ibis	Warner Mt. bedstraw
	black-footed ferret (experimental, non-essential in Duchesne and Uintah counties)	yellow-breasted chat	
	gray wolf	Amphibians	Boggs Lake hedge-hyssop
	kit fox	Columbia spotted frog (Great Basin population)	salt heliotrope
	Townsend's big-eared bat	Reptiles	Baker's globe-mallow
	fringed myotis	Short-horned lizard	Shockley's ivesia
	western red bat	Fish	Bellinger's meadow-foam
	pygmy rabbit	Lahontan cutthroat trout	disappearing monkeyflower
	Canada lynx	Alvord chub	blue-leaved penstemon
	Birds	Dixie Valley tui chub	American pillwort
	yellow-billed cuckoo - possibly	Mollusks	desert allocarya
	American white pelican	Fly Ranch pyrg	Oregon semaphoregrass
	ferruginous hawk	King's River springsnail	profuse-flowereed mesa mint
			Rafinesque's pondweed

Table 1 Sensitive Species That May Occur Along The Ruby Pipeline Route

a.	b.	c.	d.
WYOMING	UTAH	NEVADA	OREGON
	grasshopper sparrow	Sada's pryg	Columbia cress
	greater sage-grouse	Western Lahontan springsnail	verrucose sea-purslane
	Lewis's woodpecker	Insects	short-podded thelypody
	long-billed curlew	Alkanline sandhill skipper	Mammals
	northern goshawk	Denio sandhill skipper	pallid bat
	sharp-tailed grouse	Dune honey ant	pygmy rabbit
	short-eared owl	Humboldt sericum scarab	Birds
	bald eagle	Nevada viceroy	tricolored blackbird
	bobolink	Special Status Species That May Occur within the Elko District	
		Plants	greater sage-grouse (western)
	burrowing owl	meadow pussytoes	gray flycatcher
	black swift	Elko rockcress	American peregrine falcon
	three-toed woodpecker	Goose Creek milkvetch	bald eagle
	Fish	Barren Valley collomia	American white pelican
	Lahontan cutthroat trout - introduced	broad fleabane	white-headed woodpecker
	yellowstone cutthroat trout	Lewis buckwheat	purple Martin
	bonneville cuthroat trout	grimy ivesia	Amphibians
	Bear Lake whitefish	Grimes vetchling	inland tailed frog
	bonneville cisco	Owyhee prickly phlox	Reptiles
	bonneville whitefish	Packard's stickleaf	northwestern pond turtle
	Bear Lake sculpin	least phacelia	Fish
	bluehead sucker	Leiberg clover	shortnose sucker
	June sucker - introduced	Mammals	lost river sucker
	least chub	small-footed myotis	inland redband trout (all stocks)
	Amphibians	long-eared myotis	bull trout
	western toad	fringed myotis	Mollusks
	Reptiles none	long-legged myotis	evening fieldslug
	Snails and Mullosks	Yuma myotis	turban pebblesnail
	California floater	pale Townsend's big-eared bat	western ridgemussel
	lyrate mountainsnail	Pacific Townsend's big-eared	great basin ramshorn
	desert mountainsnail		highcap lanx

Table 1 Sensitive Species That May Occur Along The Ruby Pipeline Route

<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
WYOMING	UTAH	NEVADA	OREGON
		bat	
	fat-whorled pondsnail	Prebles shrew	scale lanx
	northwest bonnevillie pyrg	pygmy rabbit	modoc rim sideband
	Utah physa	North American wolverine	montane peaclam
	western pearlshell	spotted bat	archimedes springsnail
	Kanab ambersnail	Birds	lined ramshorn
	Bear Lake springsnail	bald eagle	Insects
		black tern	Johnson's hairstreak
		burrowing owl	coronis fritillary
		Columbia sharp-tailed grouse	Federal Threatened and Endangered Species - Oregon - Lake County and Klamath County
			Plants
		ferruginous hawk	Applegate's milk-vetch
		golden eagle	Mammals
		greater sage grouse	Cananda lynx
		northern goshawk	Birds none
		Swainson's hawk	Amphibians
		western yellow-billed cuckoo	Columbia spotted frog
		white-faced ibis	Fish
		Amphibians	Modoc sucker
		Columbia spotted frog	Warner sucker
		Reptiles	Foskett speckled dace
		Fish	bull trout
		interior redband trout	shortnose sucker
		Lahontan cutthroat trout	lost river sucker
		bull trout	Invertebrates/Insects none
		Independence Valley speckled dace	
		Independence Valley tui chub	
		leatherside chub	

Table 1 Sensitive Species That May Occur Along The Ruby Pipeline Route

<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
WYOMING	UTAH	NEVADA	OREGON
		Mollusks	
		California floater	
		Insects	
		Mattoni's blue butterfly	
		Nevada viceroy	
		Grey's silverspot butterfly	
		Special Status Species That May Occur within the Surprise Resource Management Area	
		Plants	
		Tiehm's milkvetch	
		Schoolcraft catseye	
		Crosby buckwheat	
		Modoc bedstraw	
		grimy ivesia	
		Geyer's milkvetch	
		Schoolcraft buckwheat	
		prostrate buckwheat	
		green buckwheat	
		Warner Mountain bedstraw	
		sagebrush loeflingia	
		Adobe parsley	
		little ricegrass	
		playa phacelia	
		Black Rock potentilla	
		Howell's thelypodium	
		Mammals	
		desert bighorn sheep	
		long-eared myotis	
		pallid bat	
		pygmy rabbit	

Table 1 Sensitive Species That May Occur Along The Ruby Pipeline Route

<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
WYOMING	UTAH	NEVADA	OREGON
		small-footed myotis	
		spotted bat	
		Townsend's big-eared bat	
		yuma myotis	
		Birds	
		bald eagle	
		bank swallow	
		burrowing owl	
		ferruginous hawk	
		golden eagle	
		greater sage-grouse	
		greater sandhill crane	
		juniper titmouse	
		sandhill crane	
		Swainson's hawk	
		western burrowing owl	
		willow flycatcher	
		Amphibians	
		Columbia spotted frog (Great Basin population)	
		Reptiles	
		northern sagebrush lizard	
		Fish	
		Warner sucker	
		Wall Canyon sucker	
		Federal Threatened and Endangered Species - Nevada	
		Plants	
		soldier meadows cinquefoil	
		steamboat buckwheat	
		Mammals	

Table 1 Sensitive Species That May Occur Along The Ruby Pipeline Route

<i>a.</i>	<i>b.</i>	<i>c.</i>	<i>d.</i>
WYOMING	UTAH	NEVADA	OREGON
		Birds	
		bald eagle	
		greater sage-grouse	
		yellow-billed cuckoo	
		Amphibians	
		Columbia spotted frog	
		Reptiles	
		desert tortoise	
		Fish	
		bull trout	
		desert dace	
		Independence Valley speckled dace	
		Lahontan cutthroat trout	
		Warner sucker	
		Invertebrates/Insects	
		Carson wandering skipper	
		elongate mud meadows	
		springsnail	

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Greater Sage Grouse and Sharp Tail Grouse Lek Survey

Lek Survey Methodology (USFWS):

1. Searches should be conducted from early April to early May (April 1 through May 7). (Survey season corresponds to peak male attendance.)
2. Surveys for new leks should be conducted a minimum of three times (with subsequent surveys seven to ten days apart).
3. Surveys for new leks should be conducted throughout suitable habitat. New leks can be located by the discovery of concentrated tracks/droppings/feathers at all times of the day when conducting other field activities. Return visits to such sites during the morning strutting hours must be made to confirm the location is a lek.
4. Surveys to confirm the activity on a lek may require only one visit if grouse are identified on the lek.

NOTE: To designate a known lek as inactive requires either an absence of birds on the lek during multiple ground visits under ideal conditions throughout the strutting season or a ground check of the exact lek site late in the strutting season that fails to find any sign (droppings/feathers) of strutting activity.

5. Surveys can be conducted from the ground or from an aircraft.
 - Lek surveys can be conducted from the ground by driving along roads in suspected or known breeding habitat and stopping every 0.5 miles to listen for sounds of breeding grouse. Ground searches can be conducted from an hour before to an hour after sunrise. In less accessible areas, searches can be made from a mountain bike, trail motorcycle, four-wheel all terrain vehicle, horseback, or on foot. On a calm morning, breeding sage grouse may be heard at a distance of 1.5 kilometers (km) (about 1 mile). All openings or areas of less dense sagebrush should be searched for breeding birds with binoculars or a spotting scope.
 - Helicopters or fixed-wing airplanes can be used for aerial surveys. Suspected breeding habitat should be flown on north - south transects with

2 Greater Sage Grouse and Sharp Tail Grouse Lek Survey

lines about 1 km (.6 mile) apart. Aerial searches are biased toward finding larger leks; small leks (<15 birds) are more difficult to detect. Calm, clear mornings are a prerequisite to aerial searches. Winds over 15 mph and more than scattered cloud cover should be sufficient to cancel search flights. Cocks can be observed from the air at distances greater than 1 km (0.6 mile) in early morning sun, but cloud cover greatly reduces observability. Under conditions of marginal light, transect width should be narrowed. High winds not only make traveling a straight transect difficult, but also affect strutting behavior. Fewer cocks will strut continuously, and flushing distance appears to be greater under windy conditions.

Transects should be flown at about 100 to 150 meters (300 to 450 feet) above ground level. Whenever possible, two observers should be used in addition to the pilot so that one observer is always looking away from the sun regardless of the direction the aircraft is flying. Surveys should begin at the east edge of the survey area and work west to minimize the possibility of the plane flying over leks prior to them being observed. Special attention should be paid to old lakebeds, stock-watering areas, and other relatively open sites largely surrounded by sagebrush with 15 to 25% canopy cover. Lek searches from an aircraft should be conducted from a half hour before to one hour after sunrise.

6. If a new lek is identified, the location should be accurately determined and recorded in Universal Transverse Mercators (UTMs) using NAD83 datum. It is advisable to record/map the perimeters of new leks. Surveyor(s) should not disturb grouse to record global positioning system (GPS) information at lek locations. If a lek is active, the surveyor(s) should make the best estimate of the lek location and return later to confirm.

Annual status - A lek will be determined to be in one of the following status categories:

Active. Any lek that has been attended by male sage grouse during the strutting season. Presence can be documented by observation of birds using the site or by signs of strutting activity.

Inactive. Leks where it is known that there was no strutting activity through the course of a strutting season. A single visit, or even several visits, without strutting grouse being seen is not adequate documentation to designate a lek as inactive. This designation requires either an absence of birds on the lek during multiple ground visits under ideal conditions throughout the strutting season or a ground check of the exact lek site late in the strutting season that fails to find any sign (droppings/feathers) of strutting activity.

Unknown. Leks that have not been documented either active or inactive during the course of a strutting season.

3

Raptor Survey Nesting/Habitat

1. Surveys should be conducted within 0.5 miles of proposed surface disturbance or activity to document nest activity during April 15 to June 15.
2. Surveys should be done in important raptor habitat including: rock outcrops, cliffs, ridges, knolls, stream banks, conifer, and cottonwood trees.
3. Optimum weather conditions for surveys are clear, calm days. Nests would be approached cautiously to avoid flushing the female, and their status will be determined from a distance with binoculars.
4. Nests will not be visited during adverse weather conditions (e.g., extreme cold, precipitation events, windy periods, or during the hottest part of the day). Visits will be as brief as possible.
5. Photographs of the nests will be taken to help illustrate nest shape, condition, and substrate.
6. Data would be recorded on the standardized form, and summarized for project reports in a table format; data should be provided to the land management agency in a digital format. Field names and codes to use are as follows:

Raptor Nest

Previously documented nests data from the NHPs would be identified in all documentation for the project. New nests would be identified and documented as presented below. The following dataset would be gathered during raptor surveys:

Species

BUOW = Burrowing Owl	OSPR = Osprey
COHA = Cooper's Hawk	PEFA = Peregrine Falcon
FEHA = Ferruginous Hawk	PRFA = Prairie Falcon
GOEA = Golden Eagle	RETA = Red-tailed Hawk
GRHO = Great Horned Owl	SWHA = Swainson's Hawk
NOGO = Northern Goshawk	SHHA = Sharp-shinned hawk
BAEA = Bald Eagle	UNAC = Unknown Accipiter
AMKE = American Kestrel	UNBU = Unknown Buteo
LOOW = Long-eared Owl	UNOW = Unknown Owl

3. Raptor Survey Nesting/Habitat

MERL = Merlin
NOHA = Northern Harrier

UNRA = Unknown Raptor

Location

Enter Township Number;
Enter Range Number;
Enter the Quarter, and Quarter/Quarter Section.

Nest Site Elevation

Enter the elevation at the nest in feet. (Not nest height, but the elevation of the terrain.)

United States Geological Survey (USGS) Quad Name

Enter the name of the appropriate USGS 7.5-inch quadrangle.

BLM Map Name

Enter the name of the appropriate BLM 1:100,000 map.

County

Enter the name of the appropriate county (if desired).

Nest Status

Status of the nest when observed (four characters).

ACTI: Active nest; a nest in which a breeding attempt was made as indicated by:

- 1) Eggs in nest, or
- 2) Young in nest, or
- 3) Fledged young near nest, or
- 4) Incubating/brooding adult.

ACTF: Active failed; an active nest that did not fledge young, indicated by:

- 1) Egg shells in or around nest with no young when, young should be in the nest, or
- 2) Young present but known not to have fledged, or
- 3) Eggs in nest but obviously abandoned (past the time when eggs should have normally hatched).

DNLO: Did not locate; surveyor searched but was unable to locate the nest (does not mean nest is gone or destroyed, merely that the observer was unable to find the nest).

OCCU: Occupied; a nest with one or more of the following:

- 1) Fresh lining material;
- 2) Adult presence at or near the nest; and
- 3) Recent and well-used perch site near the nest.

3. Raptor Survey Nesting/Habitat

- OCAL: Occupied Alternate; a tended nest within the boundaries of a territory housing an active nest.
- INAC: Inactive; a nest with no apparent recent use or adult presence at the time of observation, but in good condition.
- INAL: Inactive Alternate; an inactive nest within a territory that contains an active nest.
- INDI: Inactive Dilapidated; an inactive nest in a state of ruin due to weather, natural aging and/or neglect.
- INDE: Inactive Destroyed; a nest showing no sign of raptor activity that is destroyed to the point that it is no longer usable without major reconstruction. These nests, for all practical purposes, have disappeared, but there is often still lingering evidence of an historic presence.
- GONE: A nest that was located during a previous survey, but has subsequently been found to be destroyed and no longer exists. No evidence remains.
- PRED: Predated; the nest was active, but there is evidence that it was predated (remains of adults or young, feathers or egg shells scattered, or other physical evidence is present).

Nest Condition

- GONE: There may or may not be evidence of where the nest was, but it is no longer there.
- REMNANTS: Scant material remaining and not usable unless fully rebuilt.
- POOR: Nest is dilapidated, in need of major repair to be used.
- FAIR: Nest is not dilapidated, but needs significant repair in order to be used.
- GOOD: Nest is in need of only minor attention in order for it to be used.
- EXCELLENT: Nest is able to be used with little or no attention or maintenance.
- UNKNOWN: The nest is obviously present (i.e., a tree cavity, rock cavity), but because of its location, a determination can not be made.

Number of Young

Record the number of young in the nest, if observed.

Date Observed

Date of observation in month/day/year format (MM/DD/YYYY).

Observed By

Record the name of the person making the first observation of this nest.

Ownership

- P: Private Land
- S: State Land
- FS: Forest Service
- BLM: BLM (Public) Land
- OTHER: Other - Specify

Nest Substrate

Substrate upon which nest is built (three characters):

- | | |
|------------------------------------|----------------------------|
| ABB = Abandoned Burrow | LIM = Limber Pine Tree |
| ACB = Active Burrow | LOW = Low Ridge/Knoll |
| ANS = Artificial Nesting Structure | LPP = Lodgepole Pine Tree |
| ASP = Aspen Tree | MMS = Manmade Structures |
| BLS = Blue Spruce Tree | OSS = Other Shrub Species |
| BLT = Broadleaf Tree | PON = Ponderosa Pine Tree |
| BOX = Boxelder Tree | RIM = Rimrock |
| BTT = Butte | RIP = Riparian Area |
| CLF = Cliff | ROC = Rock Cavity |
| CKB = Creek Bank | ROK = Rock Outcrop |
| CTL = Cottonwood Tree (Live) | ROL = Rocky Ledge |
| CTD = Cottonwood Tree (Dead) | ROP = Rock Pillar/Pinnacle |
| DOF = Douglas Fir | SAG = Sagebrush |
| UNK = Unknown | GHS = Ground/Hillside |
| WIL = Willow (Live) | JUN = Juniper Tree |

Height of Substrate

Record (in feet) the height of the substrate upon/in which the nest is located.
Height of the cliff/butte/tree/etc. above the surrounding terrain.

Height of Nest on Substrate

Record (in feet) the height of the nest on/in the substrate (i.e., height of tree nest above the ground; height of cliff nest on cliff height of pillar nest above the surrounding terrain).

Nest Exposure

Record the general direction of nest exposure (e.g., N, NE, S, SW, WNW)

RAPTOR NEST LOCATION

Raptor Inventory Data Sheet

Raptor Nest ID*: _____ **Date First Observed*:** _____

Species: _____ **Observed By:** _____

Location: Township _____ N S, Range _____ E W **Ownership:** P S FS BLM LU Other _____

Section _____, _____ 1/4 _____ 1/4 **Nest Substrate*:** _____

UTM Zone: _____ **Height of Substrate (ft.):** _____

Geo. Datum (circle one): NAD 27 NAD 83 **Nest Height On/In Substrate (ft.):** _____

Northing: _____, Easting: _____ **Nest Exposure:** _____

Nest Site Elevation: _____ **Vegetation Type*:** _____

USGS Quad Name: _____ **Remarks/Comments: Physical Relationship to Other Nests, Proximity to Potential Disturbances, Etc.:**

BLM Map Name: _____

County: _____

Nest Status*: _____

Nest Condition*: _____

Number of Eggs: _____ **Young:** _____

* Use existing data codes † Historic Nest Record Monitoring of Nest Activity on Reverse Side

Map/Photo

4

Black-Footed Ferret and Black-Tailed Prairie Dog

Current data collected from each state's NHP, the BLM, FS, and state wildlife agencies have not identified black-footed ferret or black-tailed prairie dog occurrence within or near the pipeline ROW, except in Wyoming near Cumberland Gap area. Therefore, we propose only to conduct surveys in the Cumberland Gap area. However, if agencies do not agree, we propose the following protocol:

Delineate colonies using a GPS receiver to determine size utilization of colony.

Activity (defines if the colony is occupied):

YES = animals or fresh sign seen,

NO = mounds present but neither fresh sign nor animals seen and mounds show various stages of abandonment.

UNKNOWN = mounds present but neither fresh sign or animals seen, mounds may or may not show various stages of abandonment or the survey was not at the time of day and/or season when animals or fresh sign would be expected to be seen.

Size: If a colony is active, record the acreage of active mounds. Include the acreage of any inactive mounds, if possible. If a colony is inactive or activity is unknown, indicate the acreage of all mounds. If acreage cannot be accurately estimated, place size in one of the following acreage categories:

A: 0 to 5;

B: 6 to 40;

C: 41 to 160;

D: 161 to 640;

E: > 640; or

U: unfamiliar with or unable to give acreage estimation.

Density: estimate the number of burrows per acre:

Low = less than 5 burrows per acre,

Medium = 5 to 10 burrows per acre,



4. *Black-Footed Ferret and Black-Tailed Prairie Dog*

High = more than 10 burrows per acre.

Prairie Dog Colony Observation Form

Location or Identifier	Township, Range, Section, ¼ and UTM zone, east, north	Date (mo/day/yr)	Activity Y, N, U	Size (acres) <u>all</u> mounds	Size (acres) <u>active</u> mounds	Density L, M, H	Land Owner- ship	Other Species Observed
1.								
Comments:								
2.								
Comments:								
3.								
Comments:								
4.								
Comments:								
5.								
Comments:								

4-3

4. **Black-Footed Ferret and Black-Tailed Prairie Dog**

Comments: Provide any notable information such as shape of colony, landscape features, or adjacent land use.

Guidelines for Black-Footed Ferret Surveys, USFWS (April 1989)

SURVEY CRITERIA

Delineation of Survey Areas

Until the SERVICE, states, and other federal agencies are able to identify reintroduction areas and to classify other areas as being free of ferrets, surveys for black-footed ferrets will usually be recommended. During this interim period the following approach is recommended to determine where surveys are needed.

A black-tailed prairie dog (*Cynomys ludovicianus*) town or complex of less than 80 acres having no neighboring prairie dog towns may be developed or treated without a ferret survey. A neighboring prairie dog town is defined as one less than 7 kilometers (4.34 miles) distance from the nearest edge of the town being affected by a project.

Black-tailed prairie dog towns or complexes greater than 80 acres, but less than 1,000 acres, may be cleared after a survey for black-footed ferrets has been completed, provided that no ferrets or ferret sign have been found.

A white-tailed prairie dog (*Cynomys leucurus*) town or complex of less than 200 acres having no neighboring prairie dog towns may be cleared without a ferret survey. White-tailed prairie dog towns or complexes greater than 200 acres, but less than 1,000 acres, may be cleared after completion of a survey for black-footed ferrets provided that no ferrets or their sign were found during the survey.

A complex consists of two or more neighboring prairie dog towns each less than 7 kilometers (4.34) from the other. Instructions for determining a complex of black-tailed or white-tailed prairie dogs are found in Appendix II.

Before any federally funded or permitted activities are conducted on black-tailed or white-tailed prairie dog towns or complexes greater than 1,000 acres, the appropriate Service office should be contacted to determine the status of the area for future black-footed ferret reintroductions (see Appendix I). That office also will determine whether a survey for black-footed ferrets should be completed.

Defining a Prairie Dog Town

For the purpose of this document, a prairie dog town is defined as a group of prairie dog holes whose density meets or exceeds 20 burrows per hectare (eight burrows per acre). Prairie dog holes need not be active to be counted but they should be recognizable and intact (i.e., not caved in or filled with debris).

Timing of Surveys

The SERVICE recommends that surveys for black-footed ferrets be conducted as close to the initiation of a project construction date as possible, but not more than 1 year before the start of a proposed action. This is recommended to minimize the chance that a ferret might move into an area during the period between completion of a survey and the start of a project. If the town being affected is part of a complex in which the combined acreage of prairie dog towns total less than 1,000 acres, a survey of all the prairie dog towns within the complex will serve to clear the entire area provided no black-footed ferrets or their sign are found. If this is done, no future surveys for ferrets will be required within the borders of the complex regardless of future project activities unless a ferret is observed and confirmed on the complex at a later date.

An alternative to clearing all of the complex would be to search only the prairie dog town(s) that are affected. Assuming that no ferrets or signs of ferrets are found, this would allow an activity to take place on the prairie dog town. If an activity is proposed in the same area in the future, a survey for ferrets may again be required if the Service cannot justify an exemption based upon the ferret history in the area, survey records, or current status of prairie dog habitat.

In a prairie dog town or complex where the acres of prairie dog towns meet or exceed 1,000 acres, any prairie dog town being affected should be surveyed as close to the initiation of project activity as possible, but not more than one year prior to the proposed action. When other projects are planned that will affect different prairie dog towns within the complex, they too will need to be surveyed before the project starts. Towns or complexes of 1,000 or more acres should be given special consideration for their importance to the overall recovery and survival of the black-footed ferret as potential reintroduction areas. The Service would like to minimize disturbances of these areas until black-footed ferret reintroduction sites have been selected. Once reintroduction sites are selected, these large areas of prairie dogs can be cleared from the need for future surveys if the area is surveyed, no ferrets or ferret sign are found, and it is determined that the area is not needed or suitable for ferret recovery.

Project Type

Construction projects -- both linear and spatial developments -- that permanently alter prairie dog towns (e.g., buildings, facilities, surface coal mines, transmission lines, major roadways, large pipelines, impoundments) should be surveyed. The area to be surveyed should include all black-tailed prairie dog towns or complexes greater than 80 acres and white-tailed prairie dog towns or complexes greater than 200 acres occurring on a project ROW and the portion of those towns found within 0.5 miles of the construction site or ROW border. Projects of a temporary nature and those that involve only minor disturbance (e.g., fences, some power lines, underground cables) may be exempted from surveys when project activities are proposed on small prairie dog towns or complexes of less than 1,000 acres, do

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not impact those areas where ferret sightings have been frequently reported, or occur on areas where no confirmed sightings have been made in the last 10 years. To determine whether a project qualifies for exemption, the lead agency must contact the appropriate SERVICE office (see Appendix I).

Pesticide or toxicant use -- the Service recommends that before any action involving the use of a toxicant in or near a prairie dog town begins, a survey for ferrets should be conducted. This includes all black-tailed prairie dog towns or complexes greater than 80 acres or white-tailed prairie dog towns or complexes greater than 200 acres proposed for control. If phosphide-treated grain, gas cartridges, or tablets are the proposed toxicants and the town proposed for treatment is in a complex of less than 1,000 acres, the town should be surveyed 30 days or less before treatment using the nocturnal survey technique (see Selection of Survey Method, Method 2). In this situation, it is recommended that the entire complex be surveyed and cleared before treatment begins. This would avoid the need for an additional survey if the town needs to be treated again at a later date. Otherwise, the town to be treated should be surveyed as described above and surveyed again if a second treatment is needed.

Prairie dog towns or complexes greater than 1,000 acres should not be poisoned without first contacting the appropriate Service office (see Appendix I). Procedures to be followed on large towns or complexes will be the same as for those recommended for construction projects.

If the proposed control agent involves the use of any other compound under registration with the United States Environmental Protection Agency, then the area to be surveyed for ferrets should include the prairie dog town to be treated and any other town or portion of a town within 1 mile of the town being treated with the toxicant. The survey should be conducted within 30 days or less of the treatment using the nocturnal survey technique. This difference is justified on the basis of potential hazards to ferrets from secondary poisoning. As above, if the town(s) are part of a complex of less than 1,000 acres and the entire complex is surveyed for ferrets, then no future surveys will be required in the affected area if ferrets or their sign are not found.

Selection of Survey Method

Two methods to survey for black-footed ferrets or signs of them are recommended. Either method can be used. These methods are based upon the most recent survey research data, and both involve specific time periods. Research has shown a marked decrease in ferret activity and/or signs in November, April, May, and June. For this reason surveys for ferrets during these months are not recommended, since no acceptable confidence can be placed on the results of surveys conducted during this period.

Method 1

Diurnal (daylight) surveys for ferrets are recommended if surveys are conducted between December 1 and March 31. This type of survey is used to locate signs

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left by ferrets. During winter months, ferret scats, prairie dog skulls, and diggings are more abundant because prairie dogs are less active and less likely to disturb or destroy ferret sign. When there is snow cover, both ferret tracks and fresh diggings are more obvious and detectable. Daylight searches for ferret sign, should meet the following criteria to fulfill the minimum standards of these guidelines.

1. Three searches must be made on each town. Each search should be done when fresh snow has been present for at least 24 hours and after 10 or more days have passed between each search period.
2. Vehicles driven at less than 5 miles per hour may be used to search for tracks or ferret diggings, but complete visual inspections of each part of the town being surveyed is required (i.e., visually overlapping transects).
3. If ferret sign is observed, photograph the sign and make drawings and measurements of diggings before contacting the appropriate Service office (see Appendix I) and the state wildlife agency.

Aerial surveys for ferrets are considered experimental, but may be allowed in winter using skilled aerial observers when suitable snow conditions exist. Determination of when to use this technique should be made with the appropriate Service office (see Appendix I).

Method 2

Nocturnal (nighttime) surveys involve the use of spotlighting techniques for locating ferrets. This survey method is designed to locate ferrets when the maximum population and the longest periods of ferret activity are expected to occur.

Minimum standards have been established by the Service for nocturnal surveys, these should be followed as recommended and include:

1. Surveys should be conducted between July 1 and October 31.
2. The prairie dog town should be continuously surveyed using spotlights. Surveys should begin at dusk and continue until dawn on each of at least three consecutive nights. Large prairie dog colonies should be divided into tracts of 320 acres and each tract systematically searched throughout three consecutive nights. Rough, uneven terrain and tall dense vegetation may require smaller tracts to result in effective coverage of a town.
3. Observations on each prairie dog town or tract searched should begin a different starting point on each successive night to maximize the chance of overlapping the black-footed ferrets' nighttime activity period(s).
4. A survey crew consists of one vehicle and two observers equipped with two 200,000- to 300,000-candle power spotlights. In terrain not suitable for vehicles, a crew will consist of two individuals working on foot with bat-

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tery-powered 200,000- to 300,000-candle power spotlights. To estimate the number of crew nights for a survey, divide the total area (acres) of prairie dog town to be surveyed by 320/acres and multiply by 3. One or both of the observers in each survey crew should be a biologist trained in ferret search techniques.

Survey Reports

The following outline provides a general summary of the types of information useful to the Service in reviewing the results of ferret surveys for concurrence with an agency's decision of "may affect" or "no affect." This information will be used to assist in compliance decisions (see Section 7). Headings listed can be used in field data forms to ensure that all pertinent data are collected and surveys are not unnecessarily repeated. It is recommended that a report summarizing survey data be prepared for each project and submitted to the lead agency and to the appropriate Service office (see Appendix I).

Data requirements for daylight searches (December 1 to March 31) or night searches (July 1 to October 31) are as follows:

1. Date.
2. Hours spent searching (record time started and time stopped).
3. Acres searched.
4. Number of colonies searched.
5. Number of burrows inspected.
6. Ferrets or ferret sign observed and locations.
7. Photos taken.
8. Names, address(es), telephone numbers and qualifications of searchers.
9. Weather conditions (ground condition bare or snow covered).
10. Method used to search (backpack spotlight, vehicle, walking).
11. Mapped survey route and location of prairie dog town.

Survey Summary

1. Starting and completion dates for the survey.
2. Total hours of spotlight search.
3. Total acres searched by spotlight.
4. Total colonies searched using spotlight.
5. Total ferrets observed and locations by night search.
6. Total hours searched in daylight.
7. Total acres searched in daylight.
8. Total colonies searched in daylight.
9. Total ferret sign observed and location of sign observed.
10. Narrative describing search technique used.
11. Mapped location of central project (include acres and description).
12. Copies of field data sheets.

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Surveyor Qualifications

The Service has established a process to provide specific training for conducting ferret surveys. This formal training (a one-day workshop for biologists) is currently available through the Wyoming Cooperative Fishery and Wildlife Research Unit, Box 3166, University Station, Laramie, Wyoming, 82071, telephone (307) 766-5415. A trained biologist should accompany each survey crew (i.e., one trained biologist in each two person crew) when surveys are being conducted.

A field guide, *Handbook of Methods for Locating Black-footed Ferrets*, provides detailed methods for locating black-footed ferrets and interpreting sign made by this animal under field conditions. This handbook should be useful when designing surveys for black-footed ferrets, whether for Section 7 compliance or for locating ferrets for conservation and recovery. A copy of this document may be obtained from:

Bureau of Land Management
Wyoming State Office
P.O. Box 1828
Cheyenne, Wyoming 82001

Bureau of Land Management
Montana State Office
P.O. Box 36800
Billings, Montana 59107

Coordination of Surveys

This section discusses coordination measures that the Service believes are vital to completing a proper survey.

State Wildlife Agency

The appropriate state wildlife agency should be contacted prior to initiating ferret surveys. State agency personnel may provide historical information or literature pertinent to the survey or offer suggestions regarding access or landowner contacts needed for the survey. In addition, some states may require special permits for spotlighting wildlife or have minimum requirements for protecting ferrets under state laws, which are different or more detailed than those described in these guidelines.

Other Local Authorities

We recommend that persons planning surveys contact local authorities before initiating surveys. Many sheriff departments cooperate with state conservation officers in investigating possible game violations. Spotlighting crews are often reported to the game warden and sheriff by local citizens and ranchers. Proper coordination of survey activities should prevent unnecessary conflict with these groups and agencies.

Procedures to Follow if Ferret Sign or a Ferret is Located

Wildlife agencies of some states located within the potential range of the black-footed ferret have developed a procedure to follow when ferrets are seen and reported. We recommend that agencies or their representatives request these procedures from the states in which they are working and review them before conducting surveys. If no procedures are available, contact the appropriate Ser-



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vice office (see Appendix I) for guidance. If you observe a ferret while conducting surveys, you should notify the closest Service office or state wildlife agency office within 24 hours.

Experience has shown that premature release of a ferret sighting to the news media or others can have lasting negative effects upon recovery actions in the area. We request that contacts with the public be avoided until the presence of a ferret is confirmed by the Service or state wildlife agency and necessary landowner contacts and discussions are completed.

Appendix I

A set of rules for circumscribing a prairie dog complex has been developed by “Biggins, D., B. Houston, B. Miller, B. Oakleaf, T. Clark and A. Dood. 1988. A system for evaluating black-footed ferret habitat. U.S. Fish and Wildlife Service Draft Report, 40 p. plus appendix.” This method provides a practical and reasonably straightforward procedure for circumscribing a complex of prairie dogs.

To determine the acreage that a prairie dog town or complex of towns occupy, several steps are required. A diagrammatic example of a simulated complex is presented here. Before starting this exercise, those prairie dog towns that will be affected by the action and those in the surrounding area should be identified on a map having a scale of 1:24,000. Once this has been done, the following procedures should be followed:

1. Determine the northernmost prairie dog town on the map. Start at the northernmost point of the northernmost town of the complex being considered.
2. Pivot a 7-km (4.34 mile) line segment clockwise from due north until it touches a point on a town (see example). The line between the initial point and the second point forms the first segment of the polygon.
3. From the second point, pivot the 7-km line clockwise from alignment with the first segment until it touches a third point on a town. This forms the second segment of the polygon.
4. If a convex town perimeter prevents “pivoting” the 7-km line to another point, move clockwise around that perimeter until Step 3 can be accomplished. The convex perimeter of a town can thus become a segment of the boundary of the complex.
5. Continue pivoting the line from town to town until the polygon becomes closed.
6. In rare circumstances, a complex may contain one or more large prairie dog-free spaces (diameter = 7 km). Delete this space from the area of the complex, circumscribing it as follows.
 - a. Start at the southernmost point of the northernmost town in the prairie dog-free space.
 - b. Pivot a 7-km long line counterclockwise from due south until it touches a point on a town.
 - c. If a concave town perimeter prevents the “pivoting” 7-km line from contacting another point, move counter-clockwise around that perimeter until (b) can be accomplished.



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- d. Repeat step (b) until the polygon becomes closed.

5

Mountain Plover Survey Guidelines, USFWS, March 2002

Based upon data collected from each state's NHP, the BLM, FS, and state wildlife agencies have not identified mountain plover within or near the pipeline ROW. Therefore, we propose not to conduct surveys. However, if agencies do not agree, we propose the following protocol:

The mountain plover (*Charadrius montanus*) is a small bird (17.5 cm, 7 inches) about the size of a killdeer (*C. vociferus*). It is light brown with a lighter colored breast, but lacks the contrasting dark breast-belt common to many other plovers. During the breeding season it has a white forehead and a dark line between the beak and eye, which contrasts with the dark crown.

Mountain plover breeding habitat includes short-grass prairie and shrub-steppe landscapes, dryland, cultivated farms, and prairie dog towns. Plovers usually nest on sites where vegetation is sparse or absent, conditions that can be created by herbivores, including domestic livestock and prairie dogs. Vegetation in short-grass prairie sites is typically less than 4 inches tall. Nest sites within the shrub-steppe landscape are also confined to areas of little to no vegetation, although surrounded by areas visually dominated by shrubs. Commonly, nest sites within shrub-steppe areas are on active prairie dog towns. Nests are commonly located near a manure pile or rock. In addition to disturbance by prairie dogs or livestock, nests have also been found on bare ground created by oil and gas development activities, and on dryland, cultivated agriculture in the southern part of their breeding range. Mountain plovers are rarely found near water. Positive indicators for mountain plovers, therefore, include level terrain, prairie dogs, bare ground, *Opuntia* pads, cattle, widely spaced plants, and horned larks. It would be unusual to find mountain plovers on sites characterized by irregular or rolling terrain; dense, matted vegetation; grass taller than 4 inches, wet soils; or the presence of killdeer.

These guidelines were developed by USFWS biologists and Dr. Fritz Knopf, USGS-BRD. Keep in mind these are guidelines -- please call the local USFWS Ecological Services office, if you have any suggestions.

5.1 General Guidelines for Surveys

On February 16, 1999, the USFWS proposed the mountain plover for federal listing as threatened. Because listing of this species is proposed, the Service may

5. Mountain Plover Survey Guidelines, USFWS, March 2002

recommend surveys for mountain plovers to better define nesting areas, and minimize potential negative impacts. The Service may recommend surveys for mountain plovers to better define nesting areas, and minimize potential negative impacts. The Service may recommend surveys for mountain plovers in all suitable habitat, as well as avoidance of nesting areas, to minimize impact to plovers in a site planned for development. While the Service believes that plover surveys, avoidance of nesting and brood rearing areas, and timing restrictions (avoidance of important areas during nesting) will lessen the chance of direct impacts to and mortality of individual mountain plovers in the area, these restrictions do nothing to mitigate indirect effects, including changes in habitat suitability and habitat loss. Surveys are, however, a necessary starting point. The Service has developed the following three survey guidelines, depending on whether the intent is to determine the presence or absence of plovers at a site during the nesting season for permanent and short-term projects, or to determine the density of nesting plovers at known nesting sites.

Survey Protocol

Surveys for mountain plover are conducted during the period where the highest numbers of plovers are likely to be tending nests and territories and, therefore, are most likely to be detected. Throughout their range, these dates are generally from May 1 through June 15. However, seasonal restrictions for ground disturbing activities in suitable mountain plover nesting habitats are usually longer than the survey dates. The longer seasonal restrictions allow for protection of early nesting birds, and very young chicks which tend to sit still to avoid detection during the first week post-hatch. Since specific nesting dates across the breeding range of the plover vary according to latitude and local weather, the project proponent or the land management agency should contact the local USFWS office to determine what seasonal restrictions apply for specific projects.

Two types of surveys may be conducted: 1) surveys to determine the presence/absence of breeding plovers (i.e., displaying males and foraging adults), or 2) surveys to determine nest density. The survey type chosen for a project and the extent of the survey area (i.e., beyond the edge of the construction or operational ROW) will depend on the type of project activity being analyzed (e.g., construction, operation) and the users intent. One methodology outlines a breeding survey that was used in northeastern Colorado to establish the density of occupied territories, based on displaying male plovers or foraging adults. The other was developed to only determine whether plovers occupy an area.

Techniques Common to Each Survey Method

- Conduct surveys during early courtship and territorial establishment. Throughout the breeding range, this period extends from approximately mid-April through early July. However, the specific breeding period, and therefore peak survey days, depends on latitude, elevation, and weather.

5. Mountain Plover Survey Guidelines, USFWS, March 2002

- Conduct surveys between local sunrise and 1000 hours, and from 1730 hours to sunset (periods of horizontal light to facilitate spotting the white breast of the adult plovers).
- Drive transects within the project area to minimize early flushing. Flushing distances for mountain plovers may be within 3 meters for vehicles, but plovers often flush at 50 to 100 meters when approached by humans on foot.
- Use of a four-wheel-drive vehicle is preferable where allowed. Use of all-terrain vehicles has proven highly successful in observing and recording displaying males. Always seek guidance from land management agencies regarding use of vehicles on public lands, and always obtain permission of private landowners before entering their lands.
- Stay in or close to the vehicle when scanning. Use binoculars to scan and spotting scopes to confirm sightings. Do not use scopes to scan.
- Do not conduct surveys in poor weather (e.g., high wind, precipitation).
- Surveys conducted during the courtship period should focus on identifying displaying or calling males, which would signify breeding territories.
- For all breeding birds observed, conduct additional surveys immediately prior to construction activities to search for active nest sites.
- If an active nest is located, an appropriate buffer area should be established to prevent direct loss of the nest or indirect impacts from human-related disturbance. The appropriate buffer distance will vary, depending on topography, type of activity proposed, and duration of disturbance. For disturbances including pedestrian foot traffic and continual equipment operations, a .25-mile buffer is recommended.

5.2 Survey to Determine Presence/Absence

Large Scale/Long-Term Projects

1. Conduct the survey between May 1 and June 15, throughout the breeding range.
2. Visual observation of the area should be made within .25-mile of the proposed action to detect the presence of plovers. All plovers located should be observed long enough to determine if a nest is present. These observations should be made from within a stationary vehicle, as plovers do not appear to be wary of vehicles. Because this survey is to determine presence/absence only, and not calculate statistical confidence, there is no recommended distance interval for stopping the vehicle to scan for birds. Obviously numerous stops will be required to conduct a thorough survey, but number of stops should be determined on a project and site-specific basis.

5. Mountain Plover Survey Guidelines, USFWS, March 2002

3. If no visual observations are made from vehicles, the area should be surveyed on all-terrain vehicles. Extreme care should be exercised in locating plovers due to their highly secretive and quiet nature. Surveys by foot are not recommended because plovers tend to flush at greater distances when approached using this method. Finding nests during foot surveys is more difficult because of the greater flushing distance.
4. A site must be surveyed three times during the survey window, with each survey separated by at least 14 days. The need for three surveys is to capture the entire nesting period with the intent of reducing the risk of concluding that the site is not nesting habitat by an absence of nesting birds during a single survey.
5. Initiation of the project should occur as near to completion of the survey as possible. For example, seismic exploration should begin within two days of survey completion. A 14-day period may be appropriate for other projects.
6. If an active nest is found in the survey area, the planned activity should be delayed 37 days, or seven days post-hatching. If a brood of flightless chicks is observed, activities should be delayed at least seven days.

Short-term, Linear Projects

The USFWS recognizes that many projects have minimal, if any impact on mountain plover nesting habitat, and that these projects may only be present in suitable habitat for a day or less. In order to address concerns from project proponents about delays associated with mountain plover surveys for these projects, the USFWS has developed the following guidelines. However, the USFWS encourages the project proponent to plan these projects so that all work occurs outside the plover nesting season.

Short-term linear projects are defined as projects that move through an area within the course of a day and result in no permanent habitat alteration (e.g., vegetative/topographic changes) and no permanent project-related aboveground features. Short-term, linear projects may include activities, such as pipelines (4-inch diameter or less), fiber optic cables, and seismic exploration. For these projects, all ROW surveying/staking activities should be completed before April 1 to avoid discouraging plovers from nesting in suitable habitat. If ROW surveying cannot be completed before April 1, surveyors will need to coordinate with the lead federal agency before entering these areas, and a plover survey may be required prior to ROW demarcation. For these projects, the presence/absence guidelines above should adhere to the dates below.

1. **April 10 through July 10** - a plover survey will need to be completed one to three days prior to any construction activity, including initial brush clearing, to avoid direct take of mountain plovers. The survey should include the route and a .25-mile buffer on either of the project

5. Mountain Plover Survey Guidelines, USFWS, March 2002

corridor. If there is a break in construction activity in these areas of more than three days (e.g., between pipe stringing, trenching, or welding), an additional plover survey is necessary before construction activity can resume after that break in activity. Generally, mountain plovers establish territories and nests in April, and from late June to early July young chicks commonly freeze in place to avoid detection, increasing their vulnerability to direct take. After July 10, most mountain plover chicks are sufficiently mobile to reduce the risk of direct take.

2. If an active nest is found in the survey area, the planned activity should be delayed 37 days, or seven days post-hatching. If a brood of flightless chicks is observed, activities should be delayed at least seven days.

5.2 Survey to Determine Density of Nesting Mountain Plovers

We are assuming people will have received training on point counts in general before using this specialized point count technique adapted to mountain plovers.

Establishing Transects

1. Identify appropriate habitat and habitat of interest within geographic areas of interest.
2. Upon arriving in appropriate habitat, drive to a previously determined random starting point.
3. For subsequent points, drive a previously determined random distance of 0.3, 0.4, or 0.5 miles.
4. Each transect of point counts should contain a minimum of 20 points.

Conducting The Point Counts

1. Conduct counts between last week in June to July 4 at elevations equivalent to the eastern plains of Colorado (i.e., approximately 5,000 feet). Timing of counts at other elevations should be coordinated with the local USFWS office.
2. Only one counter is used. Do not use a counter and recorder or other combinations of field help. Drivers are okay as long as they do not help spot plovers.
3. If an adult mountain plover is observed, plot occupied territories on a minimum of 1:24,000-scale map and on a ROW diagram or site grid (see attached). The ROW diagram will be at a greater level of detail, depicting the

5. Mountain Plover Survey Guidelines, USFWS, March 2002

location of breeding birds (and possible nest sites) relative to ROW centerline, construction boundary, and applicable access roads.

4. Estimate or measure distances (in meters) to all mountain plovers. Method used should be noted (e.g., estimates w/distance training, estimates w/o distance training, rangefinder or measured with tape measure).
5. Record “fly-overs” as “FO” in the distance column of the data sheet.
6. If you disturb a mountain plover while approaching the point, estimate the distance from point-center to the spot from which the bird was flushed.
7. Conduct counts for 5 minutes with a 3-minute subsample to standardize with BBS.
8. Stay close to your vehicle while scanning.

Recording Data

Record the following information AT EVERY POINT, EVERY DAY:

- Start time
- Unique point code (do not duplicate within a field crew or across dates)
- Number of mountain plovers and distance to each
- Land use and/or habitat type (e.g., fallow wheat, plowed, shortgrass)
- Temperature, Beaufort wind, and sky conditions (clear, partly cloudy, overcast)
- Information on the data sheet somewhere
- Your name and address
- Date

Record for each point at some point during the census:

- Detailed location description of each point count including road number, distance to important intersections.
- Transect and point locations on USGS county maps.
- UTM from maps or a GPS unit are useful.

5.3 General Habitat Indicators

Positive Habitat Images

- Stock tank (non-leaking, leaking tanks often attract killdeer)
- Flat (level or “tilted”) terrain
- Burned field/prairie/pasture



5. Mountain Plover Survey Guidelines, USFWS, March 2002

- Bare ground (minimum of 30%)
- “Spaced” grass plants
- Prairie dog colonies
- Horned larks
- Cattle
- Heavily grazed pastures
- *Opuntia* pads visible

Negative Habitat Images

- Killdeer present (indicating less than optimal habitat)
- Hillsides or steep slope
- Prominent, obvious low ridge
- Leaky stock tanks
- Vegetation greater than 4 inches in height in short-grass prairie habitat
- Increasing presence of tall shrubs
- Matted grass (i.e., minimal bare ground)
- Lark buntings

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6

Recommendations and Guidelines for Ute Ladies'-Tresses

Based upon data collected from each state's NHP, the BLM, FS, and state wildlife agencies have not identified the Ute ladies'-tresses within or near the pipeline ROW. Therefore, we propose not to conduct surveys. However, if agencies do not agree, we propose the following protocol:

As a follow-up to a recent Ute ladies'-tresses orchid recovery team meeting the USFWS (Service) has prepared these recommendations and guidelines for Service staff and partners to further orchid recovery and aid in conducting Section 7 consultations.

Background

Ute ladies'-tresses orchid (*Spiranthes diluvialis*) is endemic to moist soils near springs, lakes, or perennial streams. The elevational range of known orchid occurrences is 4,200 to 7,000 feet. Most of the occurrences are in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows in the floodplains of perennial streams, but some locations in the eastern Great Basin are in similar situations near freshwater lakes or springs. The orchid appears to require moisture in the rooting zone, typically provided by a high ground water table, through the growing season and into late summer or early autumn. The orchid is well adapted to disturbances caused by stream movement through floodplains over time, and is tolerant of other disturbances, such as grazing, that may mimic natural disturbances in their effects on riparian habitat. Suitable potential habitat is typically found along streams that experience heavy spring runoff of sufficient magnitude to create movement and reshaping of the stream channel. Plants usually occur as small scattered groups and occupy relatively small areas within the riparian system. It is not known how, under what conditions, and in what time frame, the orchid is dispersed and new viable colonies established. The orchid is generally intolerant of deep shade and strongly alkaline or clay soils and cannot compete with aggressive rhizomatous species such as reed canarygrass (*Phalaris arundinacea*) and cattails (*Typha* spp.) or exotic species such as Canada thistle (*Cirsium arvense*). Appendix 1 provides a more complete description of orchid biology, life history, and ecology.

“Typical” orchid habitat, as described above, can be found throughout the Intermountain and Rocky Mountain west and the western plains. However, the orchid only occurs in significant numbers in two locations, in and near Boulder, Colorado along the east slope of the Front Range, and in the Uinta Basin along the south slope of the Uinta Mountains. Otherwise, it is found infrequently in widely scattered locations. Recent discoveries of colonies in Wyoming and



6. Recommendations and guidelines for UTE Ladies'-Tresses or Child (*Spiranthes diluvialis*) Recovery and fulfilling Section 7 Consultation Responsibilities

Montana indicate that surveys for and inventories of orchid occurrences continue to be an important part of orchid recovery planning and implementation. The recovery team has identified and prioritized areas where survey and inventory of the orchid are important.

Section 7 Consultation and UTE Ladies'-Tresses Orchid Surveys

Potential habitat is fairly common, yet orchid occurrences are infrequent and unpredictable. Because the probability of actually finding an orchid colony at any one location is small, the Service wishes to avoid the regulatory burden of requiring surveys under Section 7 of the Endangered Species Act for all projects throughout the potential range of the species. However, in order to recover the orchid, it is important that surveys be conducted in appropriate locations and in response to impending impacts to colonies or potential habitat. The Service has, therefore, developed the following recommendations and guidelines to help ensure that surveys are conducted where and when appropriate:

General Guidelines for Surveys

Field offices are encouraged to take the following actions regarding surveys for Ute ladies'-tresses orchid:

1. Solicit funds and organize partnership and volunteer efforts to conduct surveys in identified high-priority areas, especially those in which future impacts are likely to occur. Survey efforts should be coordinated with state NHPs and with the orchid recovery team.
2. Acquaint all Service staff with the orchid, high priority areas for surveys, habitat preferences, and species identification. Staff should have the orchid in mind when visiting wetlands or streams for any purpose, and also when reviewing projects of any type, for example, fishery, wetland, or stream enhancement or alteration projects, FERC and 404 licenses, and surveys for other species of interest that may be in or near potential orchid habitat.
3. Develop relationships with state and other federal partnership agencies to acquaint them with orchid habitat, appearance, and priority areas for survey. Encourage them to look for the orchid when in suitable areas and notify Service staff about projects that are planned for potential orchid habitat. Especially important partners include state wildlife agencies, state stream management or water quality agencies, Corps of Engineers, Natural Resources Conservation Service, Bureau of Reclamation, Forest Service and Bureau of Land Management.
4. Require surveys as part of Section 7 consultation under appropriate conditions in areas identified as high priority for surveys. Appropriate conditions include:

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- a. Large areas of potential habitat will be impacted. Examples of projects that can result in impacts to large areas of potential habitat include stream channelization and stabilization, stream habitat improvement, and projects that impact downstream hydrology and hydrograph (i.e., dams, diversions, and hydropower, gravel mining operations and streamside recreation trails).
- b. Planning time frame allows a survey to be conducted (i.e., project will not be initiated until after the next orchid flowering period). If possible, surveys should be conducted for several years. Developers in priority survey areas should be educated about the orchid and the need for surveys. They should be encouraged to plan projects sufficiently ahead that surveys will be possible so that they will not be put in a bind should the Service determine that a proposed project will have an impact on potential orchid habitat of sufficient magnitude that a survey will be required before permits can be issued.

Recommendations and Guidelines for Section 7 Consultation

The Service has placed potential habitat within the known distribution of Ute ladies'-tresses orchid into three categories for purposes of Section 7 consultation as follows:

Category 1: Surveys Required

Ute ladies'-tresses orchid is currently documented as occurring within the watershed or is documented as having occurred within the watershed within the past 50 years. Surveys for the orchid should be required as part of Section 7 consultation for projects that will have an impact on potential habitat. Agencies, developers, and others who may propose projects in areas with potential habitat should be alerted that such surveys will be required and urged to schedule project planning so as to allow time for orchid surveys during the flowering period in late summer.

Category 2: Surveys Recommended

Ute ladies'-tresses orchid may have occurred within the watershed or in nearby similar watersheds, however historical records are incomplete and the orchid is not now known to occur in the area. The watersheds are adjacent to or essentially similar in character to those where the orchid is currently known to occur. Surveys are recommended, particularly in circumstances when large areas of potential habitat will be impacted and/or when planning schedules permit surveys prior to project commencement. Project proponents should be alerted and encouraged to schedule project planning so as to allow time for orchid surveys.

Category 3: Surveys Encouraged

Ute ladies'-tresses orchid is not known to occur in or near these watersheds. However, given the known distribution of the orchid and character of the watersheds, it is possible that the orchid could be discovered. Surveys are not

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required or recommended as part of Section 7 consultation. However, Service field offices and partners are strongly encouraged to organize and support survey efforts in these watersheds.

Appendix II is a list of Category 1, 2, and 3 areas in Idaho, Colorado, Montana, Nevada, Utah and Wyoming. The areas are referenced as watershed units or subunits from USGS Hydrologic Unit maps of each state. Within these watershed units, wetlands, springs and seeps, and riparian areas within the 100-year floodplain of perennial streams below 6,500 feet elevation should be considered potential habitat. Recommended survey areas in each category will be revised as new information becomes available.

Survey Procedures

Ute ladies'-tresses orchid can only be reliably found and identified when it is flowering, which typically occurs sometime during the period from mid-July through mid-September. Surveys are conducted by walking or otherwise closely scrutinizing areas of potential habitat looking for flowering stalks. Surveys conducted at other times of the year are not reliable and are therefore not acceptable to the Service for purposes of clearance under Section 7.

Surveys should be conducted by knowledgeable botanists trained in conducting rare plant surveys. The Service does not maintain a list of "qualified" surveyors. However, the Service can refer those wishing to become familiar with the orchid to experts within their area who can help provide training.

Potential Habitat

Within the recommended search areas, surveys should focus only on good potential habitat as described in the Background section and in Appendix I.

Disqualified Habitat

Considerable experience in conducting surveys in Colorado and Utah has led to identification of a number of habitat and landscape features that indicate that a site does not qualify as suitable potential habitat for the Ute ladies'-tresses orchid. Most of these features can be identified at any time of year, often simply by driving by in a vehicle. Surveyors are urged to visit sites where projects are proposed and surveys may be recommended to determine whether, and how much, of the site actually qualifies as good potential habitat. Typically, the amount of good potential habitat in a project area is limited. Therefore, if it is a hardship for a project to be postponed until the following summer in order for a survey to be completed, it is often possible to make minor design changes to avoid potential habitat. Caution must be taken to avoid alterations in hydrology, however.

The following features serve to disqualify potential orchid habitat:

1. Appropriate hydrology not present, typically indicated by:
 - area is composed of mostly upland vegetation



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- area dries up by mid-July, with water table lower than 12 inches below the soil surface.
2. Heavy clay soils present.
 3. Soils strongly alkaline.
 4. Site heavily disturbed, for example:
 - stream banks channelized and stabilized by heavy rip-rap,
 - highway rights-of-way built on filled or compacted soil or rock material,
 - construction sites where construction has either stripped the topsoil or where construction has been completed within the last five years, but the area has not been revegetated.

(Note that the Ute ladies'-tresses orchid has been found in some heavily disturbed sites where hydrology is appropriate, such as revegetated gravel pits, heavily grazed riparian edges and pastures, and along well-traveled trails developed on old berms.)

5. Stream banks steep, transition from stream margin to upland areas is abrupt.
6. Site characterized by standing water with cattails, bullrushes, and other aquatic vegetation (note that margins of such areas may be suitable habitat).
7. Riparian areas or stream banks vegetated with dense rhizomatous species such as reed canarygrass (*Phalaris arundinacea*), tamarisk or salt cedar (*Tamarix ramosissima*), teasel (*Dipsacus sylvestris*), common reed (*Phragmites australis*), or saltgrass; (*Distichlis spicata spicata*).
8. Riparian areas overgrazed or otherwise managed such that the vegetation community is composed of upland native or weedy species or is unvegetated. Note that the orchid can tolerate rather extreme overgrazing as long as it has not resulted in a drop in the water table as indicated by conversion of the riparian vegetation community to mostly upland species.
9. Potential habitat is no longer in a natural condition, for example, has been converted to agricultural uses and is now plowed and cropped, or has been converted to lawns or golf courses.
10. Wetland is a brackish playa or pothole not fed by springs or not in the floodplain of or connected hydrologically with a riparian system or other source of fresh water.



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Permits and Voucher Specimens

Ute ladies'-tresses orchid (*Spiranthes diluvialis*) can be mistaken with a closely related species, *Spiranthes romanzoffiana*, which generally grows at higher elevations. It is important that potential new discoveries are appropriately identified and verified. However, since Ute ladies'-tresses orchid often occurs in very small numbers, destructive sampling may be undesirable. Proper verification of new locations of Ute ladies'-tresses orchid should include (1) identification of the species by experts, (2) depositing a voucher specimen in an authorized institution, and (3) completion of a data form, such as an Element Occurrence Record form provided by the state NHP, and submission of the form to the state NHP and the Service.

Field offices should have at least one staff person with a permit for collecting Ute ladies'-tresses and should be sure that other authorized surveyors, such as the state NHPs, have the necessary permit also. It is not necessary for everyone conducting surveys to have a permit, however. Service staff should make sure that all potential surveyors understand the permit requirements and that persons without a permit do not take specimens. Service staff should also encourage all surveyors and partners to notify the Service immediately if it is suspected that a new location of Ute ladies'-tresses orchid has been discovered. There have been problems in the recent past with surveyors waiting several months before notifying the Service or the state NHP. Immediate notification will allow the Service an opportunity to arrange for a person with the proper permit to take a voucher specimen and contact experts to help with identification when the orchid is still fresh and flowering. The Service may need to provide assurances to surveyors that information will be treated as confidential until surveyors have had an opportunity to notify their clients of a discovery. For your information, Appendix III lists specifications placed on permits issued in 1995.

Training

The Service and the Ute ladies'-tresses orchid recovery team will be working to develop training materials and conduct training workshops for Service staff, partners, and other interested persons. To facilitate that effort, Service staff and partners are encouraged to take photographs or make video tapes of potential habitat and orchid colonies in their areas and also to share their experience and expertise in conducting surveys. Training will include education about:

Habitat

Preferred or good potential habitat characteristics,

- Features that disqualify habitat, and
- Habitat management.

Identification

- Characteristics that distinguish *Spiranthes diluvialis* from other orchids that may be encountered



6. Recommendations and guidelines for UTE Ladies'-Tresses or Child (*Spiranthes diluvialis*) Recovery and fulfilling Section 7 Consultation Responsibilities

Survey Methods

- When to survey,
- What to look for,
- How to look, and
- Data documentation and recording:
 - what should be noted,
 - how it should be recorded,
 - to whom it should be submitted.

Regulations

- Section 7 consultation and conservation recommendations.
- Permits and collecting.

Recovery

- Recovery approach and goals,
- Status of recovery planning and implementation, and
- Potential partners and their role.

Conclusion

This guidance was prepared to encourage actions that will further orchid recovery and avoid placing an extreme regulatory burden on those planning projects within potential habitat areas. The Service hopes that good communication, coordination, and education among staff, partners, and the public can promote orchid recovery without conflict and acrimony.

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Survey Protocol for the Pygmy Rabbit

Based upon data collected for the Ruby project, the pygmy rabbit would occur within and near the pipeline ROW. Pygmy rabbits surveys will be conducted according to methods outlined in the *Surveying for Pygmy Rabbits* (4th Draft June 3, 2004 Helen Ulmschneider Boise District BLM). Below is a summary of species occurrence in Oregon, Nevada, Utah, and Wyoming.

Oregon

Distribution: Deschutes, Klamath, Crook, Lake, Grant, Harney, Baker, and Malheur counties (Natural Heritage).

Notes: Distribution restricted to eastern Oregon, historically discontinuous through counties. As of 2005, USGS surveyed Malheur, Harney, Lake, and Deschutes counties for pygmy rabbit activity. All active sites and most inactive sites on public lands surveyed by USGS were located in Harney and Lake Counties, with one inactive site in Malheur County (Hagar & Lienkaemper 2007).

Project: Pipeline may pass through habitat with high potential for pygmy rabbit in south central Lake County (based on habitat maps in Hagar & Lienkaemper 2007).

Nevada

Distribution: Churchill, Elko, Eureka, Humboldt, Lander, Nye, White, Pine counties (Natural Heritage).

Notes: A study done in 2003 by J. G. Himes and P.J. Drohan surveyed for pygmy rabbits in eastern and central Nevada (White Pine, Lincoln, and Nye Counties), and observed pygmy rabbits or evidence of occurrence within their transects surveyed.

Project: Potential populations in any sagebrush habitat throughout Elko and Humboldt counties.

7. Survey Protocol for the Pygmy Rabbit (*Brachylagus idahoensis*)

Utah

Distribution: Beaver, Box Elder, Garfield, Iron, Millard, Piute, Rich, Sevier, Toole, Washington, Wayne counties (Natural Heritage).

Notes: Janson 1946 reported estimations of 0.75 to 3.5 pygmy rabbits per acre in Iron County (considered prime habitat).

Project: Much of the pipeline path in Rich and Box Elder counties appears to run through known populations (Oliver 2004).

Wyoming

Distribution: Southwestern Wyoming

Notes: Katzner 1994 - Vertical density and diversity of the habitat were directly related to pygmy rabbit use. Highest use areas had taller, denser shrub biomass and more standing vegetation, with a thick canopy covering a large proportion of the area. These areas were characterized by basin big sagebrush and extensive vertical structure profiles.

Surveying for Pygmy Rabbits (4th Draft June 3, 2004 Helen Ulmschneider BLM Boise District).

Below is a summary of the pygmy rabbit protocol taken from the June 3, 2004, document:

Research Paper Protocol

- Walk a meandering line through a habitat patch, targeting the most likely looking places (instead of the edge), and then continue on to the next swale or habitat patch, or loop back the other side of the valley.
- Use a GPS unit to record burrow locations.
- If you are alone, walk in a loop or triangle, targeting patches of taller, denser sage, looking for pygmy rabbit burrows and pellets.
- In patchy habitat and where patches are small and follow the contours of the land, following the landforms and targeting the taller sagebrush clumps will be most effective. This means your survey line will be meandering, not straight.
- If the habitat is uniform or on extensive flats, as in Nevada, straight transect lines arranged in a triangle, or a spiral pattern may be appropriate. For a spiral transect, walk directly to the center of a large, dense sagebrush patch, and then spiral your way out, gradually increasing the diameter of your circle until the

7. Survey Protocol for the Pygmy Rabbit (*Brachylagus idahoensis*)

habitat is no longer appropriate. To fully check out a potential site often takes about one hour of survey time.

- Surveys in Idaho have shown that you will likely need to walk at least ½ mile to check an area for presence of pygmy rabbits with any degree of confidence, because of the distances between burrow systems, unless you find burrows immediately.

Recording Data

The basics to record are where and when you surveyed, whether you found burrows and pellets or not, and burrow locations and status. If you did find pygmy rabbit burrows, categorize, count them, and map them and your survey route.

Classify the status of each pygmy rabbit burrow system (not each entrance) according to the following system:

Used burrow plus fresh pellets (B+FP): brown pellets near a burrow, at least one entrance open, without cobwebs or debris that shows lack of use, usually shows a trail. In snow, tracks and/or pellets visible.

Unused burrow plus fresh pellet (UB+FP): burrow entrances have cobwebs, grass seeds, or other debris in entrance, but with brown pellets. May show transitional use.

Burrow plus old pellets (B+OP): only grey pellets at a burrow, entrances may show signs of non-use.

Burrow, no pellets (B): burrow entrance is not collapsed but no pellets found. Also use this category for burrows in snow where no tracks or pellets are visible.

Collapsed burrow (Col): No pellets

Pellets only (P): No burrows found, but pellets appear right for pygmy rabbit. (Collect and label.)

Fresh digging at a burrow but no pellets (B+dig): Digging may have been by a predator such as coyote or badger. If it was a predator, it was most likely digging after prey, and the prey may have been pygmy rabbit.

Possible PR burrow (Poss): Burrow seems right for pygmy rabbit, but there are confusing pellets or no pellets, or it is not in association with other pygmy rabbit burrows (identified by pellets or sightings).

8

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