

APPENDIX C
DATA FORMS FOR CORRIDOR MONITORING

MSCP WILDLIFE CORRIDOR MONITORING PROTOCOL FOR SURVEY AND TRACKING STATION DATA COLLECTION

The following three data sheets should be filled out during each monitoring visit to a wildlife corridor:

MSCP Wildlife Corridor Survey Data Sheet

MSCP Wildlife Corridor Tracking Station Data Form

MSCP Wildlife Species List Form

These forms should be accompanied by map(s) of the entire corridor study area and should be augmented by detailed field notes. At the end of the monitoring period all field maps and data sheets should be turned in. Summary data sheets compiling the raw data into a format ready for computer entry should also be turned in. Samples of the resulting **computerized** database are attached to ensure information is collected in the proper format.

Instructions for Collecting Data and Filling Out Data Forms

Wildlife Corridor Surveys

MSCP Wildlife Corridor Survey Data Sheet

This data sheet records all animals detected during each walk-through survey of the corridor study area. A map **should be** used for each survey to show the locations of each **focal/sensitive** species. The map should be labeled with corridor ID, date, and observer name(s). **Observation** times for each **focal/sensitive** species location should be noted (start and finish times if the animal is followed for greater than 5 minutes).

Header information on the data sheet should always be filled out completely. If more than one corridor is visited in a field day, a separate data form should be filled out for each corridor. Record all map numbers for each corridor study area. Time start and time finish for each survey is important in determining field effort and allowing comparison of results between survey areas. If the survey is interrupted for more than 10 minutes, note the length of time the survey was interrupted. Information concerning weather conditions (minimum and maximum encountered during the survey period) is important in interpreting the results of each survey.

Primary focal species include California **gnatcatcher**, coastal cactus wren, coyote, mountain lion, bobcat, and mule deer. Secondary focal or sensitive species include any species considered sensitive by state or federal governments, other species on the MSCP target species list, and species that are of significant local concern. All sign or visual sightings of primary and secondary focal species should be entered onto the map and onto the data sheet. A unique numbering system should link the information on the map with the data sheet. It is important not to double count animal sign (e.g., scat and tracks) detected on previous surveys. To avoid double **counting** bring copies of previous field maps showing the location and number of sign detected previously. For each visual sighting the number, age, sex, and pairing status of individuals should be determined, as feasible. The "No. **Heard/Not Seen**" column applies primarily to birds that were not visually detected. It is important to map the location of birds detected only by vocalizations. All visual sightings of focal individuals should be recorded on the maps and data sheets even if individuals were thought to be detected on a previous survey.

MSCP Wildlife Corridor Survey Summary Form

At the end of the monitoring period information for primary focal species should be summarized into cumulative counts of mammal sign and numbers of resident and dispersing birds. These data are summarized on the Wildlife **Corridor** Summary Form and on a clean map. Using spot mapping interpretation, information should be compiled so that resident or dispersing pairs and individuals are only counted once on summary maps and data sheets.

MSCP **Wildlife** Corridor Survey Database

Two databases **will** be created from the corridor survey **data**, one for focal bird species and one for mammals. Information on primary focal species will be input, but data on secondary species will be entered only if there are sufficient funds and time available to do so. Examples of the databases with data entered are attached.

Wildlife Corridor Mammal Tracking Station Data

MSCP Wildlife Corridor Mammal Tracking Station Data Form

This form should be filled out during each visit to a corridor. Data from multiple stations within a single corridor may be entered onto one form. Header information should be filled out completely. "**Tracking Station ID**" refers to a unique numbering system for each tracking station, with no replication of numbering between corridors. These numbers link

tracking station data to **large** scale corridor maps showing the specific location of each station. "Tracking Method" refers to the substrate at the tracking station (e.g., sand, graphite powdered cards, lime chalk, or a combination of methods). If a species is detected at a station an "X" should be entered **into** the appropriate species column for that station. If a track's identity cannot be **determined**, pictures should be taken of the **track(s)**. If graphite cards are used they should be saved when possible. These precautions allow for future identification of the tracks. Other species detected at the tracking station should be listed in the "Other Species" column. Field notes should clearly describe any unusual tracks, the number of individuals detected, any information on the activity of the animal at the tracking station, and any other interesting observations.

MSCP Wildlife Corridor Mammal Tracking Station Database

For the wildlife corridor **mammal** tracking station database, information should be summarized (by species) for cumulative visits to each station. The number of visits to a station when the focal species was detected should be entered. The proportion of visits the species was detected at the station can be calculated by dividing the number of visits it was observed by the total number of visits to the station. Summarized data should be entered into the appropriate columns of the database **form**.

Wildlife Species List

MSCP Wildlife Corridor Species List and Species Richness Database

The species list form should be filled out for each field visit and all detected vertebrate species should be checked off or written down in the appropriate sections. At the end of the monitoring period, all species sighting information should be compiled into the MSCP Wildlife Corridor Species Richness Database (see example). The name of each species that was detected should be entered under the "Species Name" column (list by **taxonomic** groups as shown on the species list form). Header information (e.g., Corridor ID, Map No., Sur. Year, and Total Visits to Station) should be listed for each row of the database.

MSCP Wildlife Corridor Summary Form

(For each corridor fill out this form for each year of monitoring)

Corridor ID: _____ **Map Number(s):** _____

Survey Period: _____

Cumulative Hours of Field Effort: _____

Observers: _____

Detected Focal Mammal Species

First Priority Focal Species	No. of Tracks	No. of Scats	No. of Sightings
Coyote			
Mountain Lion			
Bobcat			
Mule Deer			
Other Species (List)			

Qualitative Habitat Assessment

(habitat abundance, quality, noise, lighting, human disturbance, etc.)

Detected Focal Bird Species

First Priority Focal Species	No of Pairs				No of Single Birds			
	Ad Pr	Juv Pr	Ad/Juv Pr	Unk. Age Pr	Fem Ad	Male Ad	Juv.	Unk. Age/Sex
California gnatcatcher								
Cactus Wren								

Other Species (List)

COMPLETE SPECIES LIST

Corridor ID _____
 DATE _____
 OBSERVER _____

FISH

AMPHIBIANS

REPTILES

MAMMALS

VERTEBRATES

- LOONS**
 Red-throated Loon
 Pacific Loon
 Common Loon
- GREES**
 Pied-billed Grebe (B)
 Horned Grebe
 Red-necked Grebe *
 Eared Grebe (B)
 Western Grebe (B)
 Clark's Grebe (B)
- ALBATROSSES**
 Short-tailed Albatross *
 Black-footed Albatross
 Laysan Albatross *
- FULMARS 4 SHEARWATERS**
 Northern Fulmar
 Cook's Petrel
 Pink-footed Shearwater
 Flesh-footed Shearwater *
 Buller's Shearwater
 Sooty Shearwater
 Short-tailed Shearwater
 Black-vented Shearwater
- STORM-PETRELS**
 Wilson's Storm-Petrel *
 Fork-tailed Storm-Petrel *
 Leach's Storm-Petrel
 Ashy Storm-Petrel
 Band-rumped Storm-Petrel *
 Black Storm-Petrel
 Least Storm-Petrel
- TROPICBIRDS**
 Red-billed Tropicbird
 Red-tailed Tropicbird *
- BOOBIES**
 Masked Booby *
 Blue-footed Booby *
 Brown Booby *
- PELICANS**
 American White Pelican
 Brown Pelican
- CORMORANTS**
 Double crested Cormorant (B)
 Brandt's Cormorant (B)
 Pelagic Cormorant
- DARTERS**
 Anhinga *
- FRIGATEBIRDS**
 Magnificent frigatebird
- BITTERNS 4 HERONS**
 American Bittern
 Least Bittern (B)
 Great Blue Heron (B)
 Great Egret (B)
 Snowy Egret (B)
 Little Blue Heron (B)
 Tricolored Heron
 Reddish Egret *
 Cattle Egret (B)
 Green-backed Heron (B)
 Black-crowned Night-Heron (B)
 Yellow-crowned Night-Heron *
- IBISES 4 SPOONBILLS**
 White Ibis *
 White-faced Ibis (B)
 Roseate Spoonbill *
- STORKS**
 Wood Stork
- SWANS, GEESE 4 DUCKS**
 Rufous Whistling-Duck *
 Tundra Swan
 Greater White-fronted Goose
 Snow Goose
 Ross' Goose
 Brant
 Canada Goose
 Wood Duck
 Green-winged Teal (B)

- BIRDS**
- Mallard (B)
 Northern Pintail (B)
 Blue-winged Teal
 Cinnamon Teal (B)
 Northern Shoveler (B)
 Gadwall (B)
 Eurasian Wigeon
 American Wigeon
 Canvasback
 Redhead (B)
 Ring-necked Duck
 Greater Scaup
 Lesser Scaup
 King Eider *
 Harlequin Duck *
 Oldsquaw
 Black Scoter
 Surf Scoter
 White-winged Scoter
 Common Goldeneye
 Barrow's Goldeneye *
 Bufflehead
 Hooded Merganser
 Common Merganser
 Red-breasted Merganser
 Ruddy Duck (B)
- AMERICAN VULTURES**
 Turkey Vulture (B)
 California Condor (E)
- KITES, EAGLES 4 HAWKS**
 Osprey
 Black-shouldered Kite (B)
 Mississippi Kite *
 Bald Eagle
 Northern Harrier (B)
 Sharp-shinned Hawk
 Cooper's Hawk (B)
 Northern Goshawk *
 Harris' Hawk *
 Red-shouldered Hawk (B)
 Broad-winged Hawk
 Swainson's Hawk
 Zone tailed Hawk (a)
 Red-tailed Hawk (B)
 Ferruginous Hawk
 Rough legged Hawk
 Golden Eagle (B)
- FALCONS**
 American Kestrel (B)
 Merlin
 Peregrine Falcon (B)
 Prairie Falcon (B)
- PHASANTS, TURKEYS 4 QUAIL**
 Ring-necked Pheasant (I)
 Wild Turkey (I)
 Gambel's Quail (B)
 California Quail (B)
 Mountain Quail (B)
- RAILS, GALLINULES 4 COOTS**
 Black Rail
 Clapper Rail (B)
 Virginia Rail (B)
 Sora
 Purple Gallinule *
 Common Moorhen (B)
 American Coot (B)
- CRANES**
 Sandhill Crane *
- PLOVERS**
 Black-bellied Plover
 Lesser Golden-Plover
 Snowy Plover (B)
 Wilson's Plover *
 Semipalmated Plover
 Killdeer (B)
 Mountain Plover
- OYSTER CATCHERS**
 American Oystercatcher *
 Black Oystercatcher
- STILTS 4 AVOCETS**
 Black-necked Stilt (B)
 American Avocet (B)
- SANDPIPERS 4 PHALAROPES**
 Greater Yellowlegs

- Lesser Yellowlegs
 Spotted Redshank *
 Solitary Sandpiper
 Willet
 Wandering Tattler
 Spotted Sandpiper (B)
 Whimbrel
 Long-billed Curlew
 Bar-tailed Godwit *
 Marbled Godwit
 Ruddy Turnstone
 Black Turnstone
 Surf-bird
 Red Knot
 Sandering
 Semipalmated Sandpiper
 Western Sandpiper
 Rufous-necked Stilt *
 Least Sandpiper
 Baird's Sandpiper
 Pectoral Sandpiper
 Sharp-tailed Sandpiper *
 Dunlin
 Curlew Sandpiper *
 Stilt Sandpiper
 Buff-breasted Sandpiper *
 Ruff
 Short-billed Dowitcher
 Long-billed Dowitcher
 Common Snipe
 Wilson's Phalarope
 Red-necked Phalarope
 Red Phalarope
- SKUAS, GULLS, TERNS 4 SKIMMERS**
 Pomarine Jaeger
 Parasitic Jaeger
 Long-tailed Jaeger
 South Polar Skua
 Laughing Gull
 Franklin's Gull
 Little Gull *
 Com. Black-headed Gull *
 Bonaparte's Gull
 Heermann's Gull
 Mew Gull
 Ring-billed Gull
 California Gull
 Herring Gull
 Thayer's Gull
 Iceland Gull *
 Yellow footed Gull *
 Western Gull (B)
 Glaucous-winged Gull
 Glaucous Gull
 Black-legged Kittiwake
 Sabine's Gull
 Gull-billed Tern (B)
 Caspian Tern (B)
 Royal Tern (B)
 Elegant Tern (B)
 Sandwich Tern *
 Common Tern
 Arctic Tern
 Forster's Tern (B)
 Least Tern (B)
 Sooty Tern *
 Black Tern
 Black Skimmer (B)
- AUKS, MURRES 4 PUFFINS**
 Common Murre
 Pigeon Guillemot *
 Marbled Murrelet *
 Kittitz's Murrelet *
 Xantus' Murrelet
 Craven's Murrelet
 Ancient Murrelet
 Cassin's Auklet
 Parakeet Auklet *
 Rhinoceros Auklet
 Tufted Puffin *
 Horned Puffin
- PIGEONS 4 DOVES**
 Rock Dove (I)
 Band-tailed Pigeon (B)
 Spotted Ooia (I)
 White-winged Dove (B)
 Mourning Dove (B)
 Inca Dove *
 Common Ground-Dove (B)
 Ruddy Ground-Dove *

CUCKOOS & ROADRUNNERS

- ___ Yellow billed Cuckoo *
- ___ Greater Roadrunner (B)

BARN OWLS

- ___ Barn Owl (B)

TYPICAL OWLS

- ___ Flammulated Owl
- ___ Western Screech-Owl (B)
- ___ Great Horned Owl (B)
- ___ Northern Pygmy-Owl (B)
- ___ Burrowing Owl (B)
- ___ Spotted Owl (B)
- ___ Long-eared Owl (B)
- ___ Short-eared Owl
- ___ Northern Saw-whet Owl (B)

GOATSUCKERS

- ___ Least Nighthawk (B)
- ___ Common Nighthawk *
- ___ Common Poorwill (B)
- ___ Whip-poor-will *

SWIFTS

- ___ Black Swift
- ___ Chimney Swift *
- ___ Vaux's Swift
- ___ White-throated Swift (B)

HUMMINGBIRDS

- ___ Broad-billed Hummingbird
- ___ Xantus Hummingbird *
- ___ Black-chinned Hummingbird (B)
- ___ Anna's Hummingbird (B)
- ___ Costa's Hummingbird (B)
- ___ California Hummingbird
- ___ Broad-billed Hummingbird *
- ___ Florida Hummingbird
- ___ Allen's Hummingbird

KINGFISHERS

- ___ Belted Kingfisher (B)

WOODPECKERS

- ___ Lewis' Woodpecker
- ___ Acorn Woodpecker (B)
- ___ Yellow-bellied Sapsucker *
- ___ Red-naped Sapsucker
- ___ Red-breasted Sapsucker (B)
- ___ Williamson's Sapsucker
- ___ Ladder-backed Woodpecker
- ___ Nuttall's Woodpecker (B)
- ___ Downy Woodpecker (B)
- ___ Hairy Woodpecker (B)
- ___ White-headed Woodpecker
- ___ Northern Flicker (B)

TYRANT FLYCATCHERS

- ___ Olive-sided Flycatcher (B)
- ___ Greater Pewee
- ___ Western Wood-Pewee (B)
- ___ Willow Flycatcher (B)
- ___ Least Flycatcher
- ___ Hammond's Flycatcher
- ___ Dusky Flycatcher (B)
- ___ Gray Flycatcher
- ___ Pacific-slope Flycatcher (B)
- ___ Black Phoebe (B)
- ___ Eastern Phoebe
- ___ Say's Phoebe (B)
- ___ Vermilion Flycatcher (B)
- ___ Dusky-capped Flycatcher *
- ___ Ash-throated Flycatcher (B)
- ___ Great Crested Flycatcher *
- ___ Sulphur-bellied Flycatcher *
- ___ Tropical Kingbird
- ___ Cassin's Kingbird (B)
- ___ Thick-billed Kingbird *
- ___ Western Kingbird (B)
- ___ Eastern Kingbird
- ___ Scissor-tailed Flycatcher

LARKS

- ___ Horned Lark (B)

SWALLOWS

- ___ Purple Martin (B)
- ___ Tree Swallow (B)
- ___ Violet-green Swallow (B)
- ___ N. Rough-winged Swallow (B)
- ___ Bank Swallow
- ___ Cliff Swallow (B)

JAYS & CROWS

- ___ Steller's Jay (B)
- ___ Scrub Jay (B)
- ___ Pinyon Jay
- ___ Clark's Nutcracker
- ___ American Crow (B)
- ___ Common Raven (B)

TITMICE

- ___ Mountain Chickadee (B)
- ___ Plain Titmouse (B)

VERDINS

- ___ Verdin (B)

BUSHTITS

- ___ Bushtit (B)

NUTHATCHES

- ___ Red-breasted Nuthatch (B)
- ___ White-breasted Nuthatch (B)
- ___ Pygmy Nuthatch (B)

CREEPERS

- ___ Brown Creeper (B)

WRENS

- ___ Cactus Wren (B)
- ___ flock Wren (B)
- ___ Canyon Wren (B)
- ___ Bewick's Wren (B)
- ___ House Wren (B)
- ___ Winter Wren
- ___ Maran Wren (B)

DIPPERS

- ___ American Dipper

MUSCICAPIDS

- ___ Golden-crowned Kinglet
- ___ Ruby-crowned Kinglet
- ___ Blue-gray Gnatcatcher (B)
- ___ California Gnatcatcher (B)
- ___ Black-tailed Gnatcatcher (B)
- ___ Western Bluebird (B)
- ___ Mountain Bluebird
- ___ Townsend's Solitaire
- ___ Gray-cheeked Thrush *
- ___ Swainson's Thrush (B)
- ___ Hermit Thrush
- ___ Wood Thrush *
- ___ American Robin (B)
- ___ Varied Thrush
- ___ Wrenlet (B)

MOCKINGBIRDS & THRASHERS

- ___ Gray Catbird
- ___ Northern Mockingbird (B)
- ___ Sage Thrasher
- ___ Brown Thrasher
- ___ Bendire's Thrasher
- ___ California Thrasher (B)
- ___ Cassin's Thrasher (B)
- ___ La Coma's Thrasher (B)

PIPITS

- ___ Red-throated Pipit
- ___ American Pipit
- ___ Sprague's Pipit *

WAXWINGS

- ___ Bohemian Waxwing *
- ___ Cedar Waxwing

SILKY-FLYCATCHERS

- ___ Phainopepla (B)

SHRIKES

- ___ Loggerhead Shrike (B)

STARLINGS

- ___ European Starling (f)

VIREOS

- ___ White-eyed Vireo *
- ___ Ball's Vireo (B)
- ___ Gray Vireo (B)
- ___ Solitary Vireo (B)
- ___ Yellow-throated Vireo *
- ___ Hutton's Vireo (B)
- ___ Warbling Vireo (B)
- ___ Philadelphia Vireo

EMBERIZIDS

- ___ Blue-winged Warbler *
- ___ Golden-winged Warbler *
- ___ Tennessee Warbler
- ___ Orange-crowned Warbler (B)
- ___ Nashville Warbler
- ___ Virginia's Warbler
- ___ Lucy's Warbler
- ___ Northern Parula
- ___ Yellow Warbler (B)
- ___ Chestnut-sided Warbler
- ___ Magnolia Warbler
- ___ Cape May Warbler
- ___ Black-throated Blue Warbler
- ___ Yellow-rumped Warbler (B)
- ___ Black-throated Gray Warbler (B)
- ___ Townsend's Warbler
- ___ Harris Warbler
- ___ Black-throated Green Warbler
- ___ Blackburnian Warbler
- ___ Yellow-throated Warbler
- ___ Grace's Warbler *
- ___ Pine Warbler *
- ___ Prairie Warbler
- ___ Palm Warbler
- ___ Bay-breasted Warbler
- ___ Blackpoll Warbler
- ___ Cerulean Warbler *
- ___ Black-and-white Warbler
- ___ American Redstart
- ___ Prothonotary Warbler
- ___ Worm-eating Warbler
- ___ Ovenbird
- ___ Northern Waterthrush
- ___ Louisiana Waterthrush *
- ___ Kentucky Warbler *
- ___ Connecticut Warbler *
- ___ Mourning Warbler *
- ___ MacGillivray's Warbler
- ___ Common Yellowthroat (B)
- ___ Hooded Warbler
- ___ Wilson's Warbler
- ___ Canada Warbler
- ___ Red-faced Warbler *
- ___ Painted Redstart (B)
- ___ Yellow-breasted Chat (B)
- ___ Hepatic Tanager

- ___ Summer Tanager
- ___ Scarlet Tanager
- ___ Western Tanager (B)
- ___ Pyrrhuloxia *
- ___ Rose-breasted Grosbeak
- ___ Black-headed Grosbeak (B)
- ___ Blue Grosbeak (B)
- ___ Indigo Bunting (B)
- ___ Indigo Bunting
- ___ Painted Bunting *
- ___ Dickcissel
- ___ Green-tailed Towhee (B)
- ___ Rufous-sided Towhee (B)
- ___ California Towhee (B)
- ___ Cassin's Sparrow *
- ___ Rufous-crowned Sparrow (B)
- ___ American Tree Sparrow
- ___ Chipping Sparrow (B)
- ___ Clay-colored Sparrow
- ___ Brewer's Sparrow
- ___ Black-chinned Sparrow (B)
- ___ vesper Sparrow
- ___ Lark Sparrow (B)
- ___ Black-throated Sparrow (B)
- ___ Sage Sparrow (B)
- ___ Lark Bunting
- ___ Savannah Sparrow (B)
- ___ Baird's Sparrow *
- ___ Grasshopper Sparrow (B)
- ___ Sharp-tailed Sparrow
- ___ Fox Sparrow (B)
- ___ Song Sparrow (B)
- ___ Lincoln's Sparrow
- ___ Swamp Sparrow
- ___ White-throated Sparrow
- ___ Golden-crowned Sparrow
- ___ White-crowned Sparrow
- ___ Harris' Sparrow
- ___ Dark-eyed Junco (B)
- ___ McCown's Longspur *
- ___ Lapland Longspur
- ___ Chestnut-collared Longspur
- ___ Bobolink
- ___ Red-winged Blackbird (B)
- ___ Tricolored Blackbird (B)
- ___ Western Meadowlark (B)

- ___ Rusty Blackbird *
- ___ Brewer's Blackbird (B)
- ___ Great-tailed Grackle (B)
- ___ Common Grackle *
- ___ Bronzed Cowbird *
- ___ Brown-headed Cowbird (B)
- ___ Orchard Oriole
- ___ Hooded Oriole (B)
- ___ Streak-backed Oriole *
- ___ Northern Oriole (B)
- ___ Scott's Oriole (B)

FINCHES

- ___ Purple Finch (B)
- ___ Cassin's Finch
- ___ House Finch (B)
- ___ Red Crossbill
- ___ Pine Siskin
- ___ Lesser Goldfinch (B)
- ___ Lawrence's Goldfinch (B)
- ___ American Goldfinch (B)
- ___ Evening Grosbeak

OLD WORLD SPARROWS

- ___ Houa's Sorrow (f)

**FIELD CHECKLIST
of the
BIRDS OF SAN DIEGO COUNTY**

prepared by Guy McCaskle
for the

**SAN DIEGO COUNTY
PARKS AND RECREATION DEPARTMENT**

August, 1990

f - species known to have bred in the county in recent times
* - species sighted fewer than 10 times in the last 25 years
- native species now extirpated in the county.
- nonnative species introduced in the county.

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