COMPARISON OF FAUNAL REMAINS FROM FOUR SITES ALONG THE SAN DIEGO RIVER VALLEY, CALIFORNIA

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ABSTRACT

Faunal analyses from CA-SDI-48 (Ballast Point, Point Loma), SDI-11767 (Mission Valley), SDI-9243, and SDI-10148 (both from East Mission Gorge, Santee) were compared to reconstruct the diet of the prehistoric Native Americans along the San Diego River Valley, California. These sites identify the use of coastal and inland resources for over a 7000-year span for San Diego bay and riverine habitats. Table 1 indicates the presence or absence of the number of animal species by taxon used for comparitive analysis and discussion. The amount and weight of animal bone or marine shell recovered was not used due to the variance in collection and/or cataloging. Therefore, the percentage of species for each taxon was tabulated by site to illustrate differences between sites.

INTRODUCTION OF SITES

SDI-48

Sites SDI-48, SDI-11767, SDI-9243, and SDI-10148 were selected for this study as they are situated along the San Diego River Valley and have data recovery results (Figure 1). SDI-48, located on the southeastern portion of the Point Loma Peninsula within the U.S. Naval Submarine Base in San Diego County, represents the only site in this study not within the present-day river valley. Prehistorically, the San Diego River emptied into the San Diego Bay, and therefore, is considered to be within this study boundary.

Point Loma contains at least five indigenous plant communities: coastal strand, coastal salt marsh, freshwater marsh, riparian, and coastal sage scrub (Gallegos and Kyle 1988). Available native plant communities and the location of this site adjacent to bay and ocean resources offered Native American populations a rich diversity of food sources from both land and ocean habitats (Gallegos and Kyle 1988).

Site SDI-48 is situated on what is historically known as Ballast Point, named for the point at which incoming ships would unload their ballast before entering the natural bay. The site represents extensive Native American habitation with large amounts of shell, bone, lithic tools, and lithic waste flakes (Gallegos and Kyle 1988). SDI-48 was radiocarbon dated to between 7830 ± 80 BP (Before Present) and 680 ± 50 BP in the 1988 WESTEC study placing occupation from the Early Prehistoric Period through the Late Period (Gallegos and Kyle 1988).

The faunal analysis identified a predominance of marine mammals including whale, sea otter, fur seal, sea lion, harbor seal; small-to-large terrestrial mammals including rabbit/hare, rodent, fox, badger, mountain lion, and mule deer; a variety of land and sea birds; reptile; fish and shellfish from rocky and soft substrates, sandy tidal areas, and rocky shores (Cerreto 1988). Based on the amount of remains, it was determined that the aboriginal diet consisted primarily of fish, birds, sea mammals, small-to-large land mammals, and shellfish (Gallegos and Kyle 1988).

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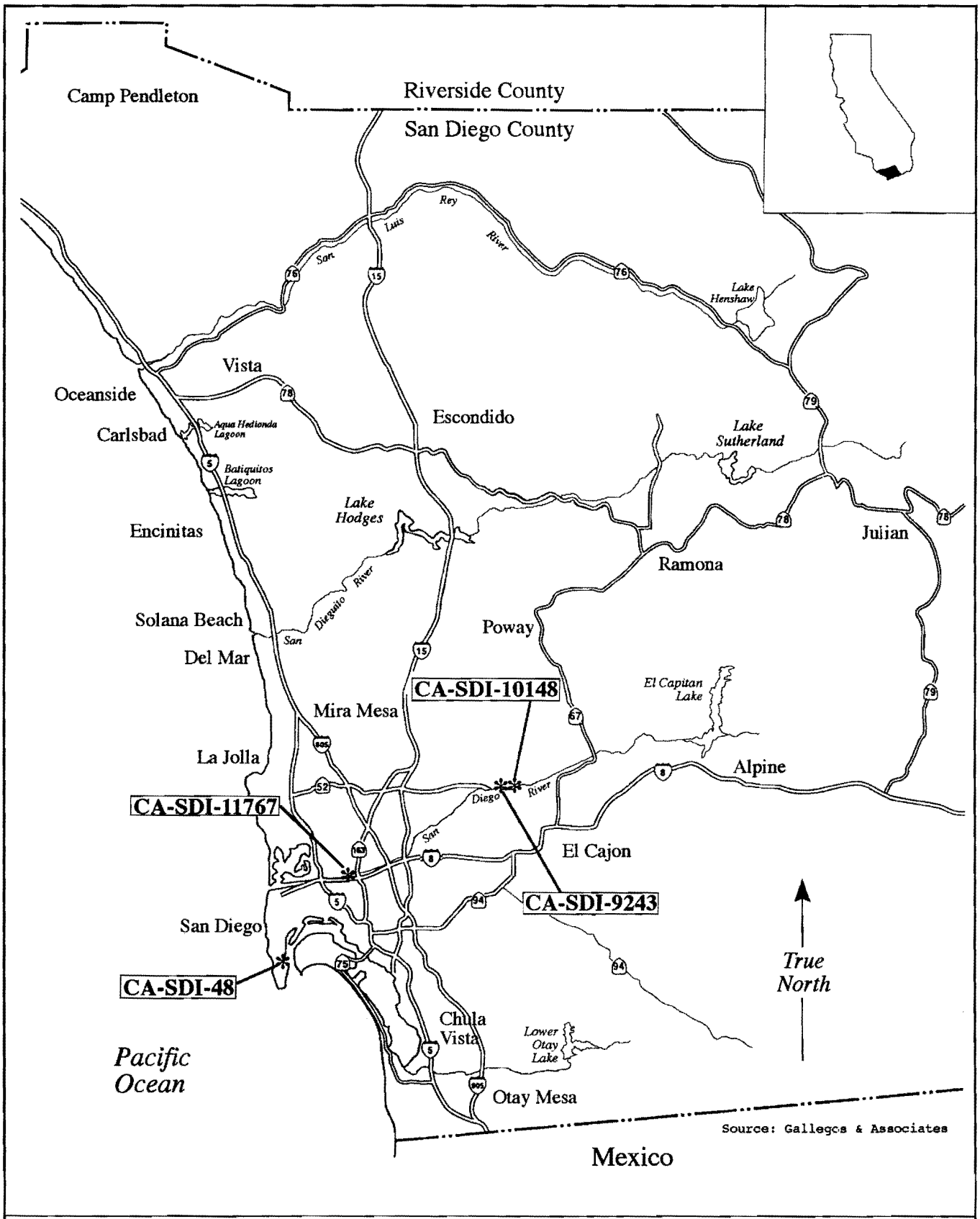

Figure 1. Map showing regional location of San Diego River Valley sites.

SDI-11767

Site SDI-11767 is located on the south side of the San Diego River floodplain within Mission Valley, approximately seven miles/11 kilometers east of the coast (see Figure 1). The site was originally recorded by Malcolm Rogers in the 1920s as a habitation site; a portion was tested by Kaldenberg in 1975; and it was surveyed and tested by ERCE (Pigniolo and Huey 1991). The 1991 test included excavation of 29 STPs and two 1x1 m test units. The recovery of shell and stone beads, lithic tools and debitage, food refuse of marine shell, fish and animal bone, charcoal, historic material, and fire-affected rock, identified the site as a large habitation area (Pigniolo and Huey 1991).

Faunal remains identified include small-to-medium sized mammals, migrant shore birds, amphibian and reptile species, and ocean fish species. The rich riparian resource offered a year-round water source, as well as local animal resources. Otoliths identified six species of fish including croaker, bass, and rockfish that require off-shore hook-and-line fishing beyond the surf zone. A chione shell sample was radiocarbon dated to 2070 ± 80 BP that places the habitation in the Transition Period between Early and Late Period occupation (Pigniolo and Huey 1991).

SDI-9243

Site SDI-9243 is located in the East Mission Gorge area of San Diego County in the community of Santee, approximately 15 miles/25 kilometers from the coast at 310' elevation above mean sea level (AMSL) along the southern side of the San Diego River floodplain and river valley (see Figure 1). A native riparian community exists to the north of the site with cottonwood, willow, and oaks.

Site SDI-9243 was originally recorded by Ken Hedges in 1978, resurveyed by Anna Noah in 1982, tested by Caltrans (Corum and White 1986), with later fieldwork by Ogden in 1992 and Brian F. Mooney Associates in 1993. The Ogden fieldwork consisted of excavation of 29 1x1 m units, two 0.5x1 m units, and pretrenching identifying two distinct occupations (Carrico et al. 1994). A lower stratum, Horizon 1, existed below 50 cm in the eastern portion of the site which radiocarbon dated to 5400 and 2340 years ago. This conforms to the Early Period of occupation. The upper 40 cm stratum, Horizon 2, is assumed to be Late Period/Contact Period with the presence of obsidian with hydration calibration rates, pottery, trade beads, and typological analysis of bifaces. This dual occupation is also indicated in the faunal analysis with decreased emphasis on maritime resources by 57% and increased emphasis on small terrestrial mammals in the upper levels. This study included that separation of data as indicated on Table 1. Species present include small-to-large terrestrial mammals, bird, reptile, amphibian, fish, and shellfish (Carrico et al. 1994).

The 1993 fieldwork completed by Mooney Associates consisted of 20 excavation units, 18 of which were within 3x3 m blocks, and two contiguous units (McDonald et al. 1994). Artifacts recovered include lithic tools and debitage, Coso and Obsidian Butte obsidian, Elko-eared dart points, arrow points, ceramics, and faunal remains. Faunal remains consist of small-to-large terrestrial mammals including mice, woodrat, squirrel, gopher, rabbit/hare, and mule deer, pond turtle and rattlesnake, fish, and seven species of shellfish (McDonald et al. 1994).

SDI-10148

Site SDI-10148 is located approximately 1.6 km east of site SDI-9243 on the southern side of the San Diego River within the valley floodplain (see Figure 1). Vegetation consists of riparian habitat and introduced grasses. This site was originally recorded by Thesken in 1984, tested by Caltrans in 1985 with nine test units and three shovel test pits, and tested by ERCE in 1991 with a 5% random surface collection, excavation of three backhoe trenches, 20 STPs, and three test units. The site was monitored by Gallegos & Associates in 1992, at which time a stone bowl containing burned bone was unearthed. The bone was radiocarbon dated to 805 ± 50 BP. Charcoal samples from three hearths were dated to 1130 ±

TABLE 1
General List of Fauna from Sites SDI-48, SDI-11767, SDI-9243, and SDI-10148

Scientific Name	Common Name	Habitat	Presence of Remains			
			SDI-48	SDI-11767	SDI-9243	SDI-10148
TERRESTRIAL TAXON						
Mammals:						
Artiodactyla sp.	Even-toed Mammals (deer, pronghorn, etc.)		X	X	X(1)	X
Bos taurus	Cow		X			
Canis latrans	Coyote				X(1;2)	
Citellus variegatus	Rock Squirrel				X	
Felidae sp.	Cat sp.				X(1)	
Felis concolor	Mountain Lion		X		X(1)	
Leporidae sp.	Rabbit/Hare		X	X	X(1;2)	X
Lepus californicus	Black-tailed Jackrabbit		X	X	X(1;2;3)	X
Lynx rufus	Bobcat				X	
Microtus californicus	Vole		X			
Neotoma fuscipes	Dusky-footed Woodrat		X	X	X(1;2;3)	X
Odocoileus hemionus	Southern Mule Deer		X	X	X(2;3)	
Perognathus sp.	Pocket Mouse		X		X(2;3)	
P. californicus	California Pocket Mouse				X	
P. fallax	San Diego Pocket Mouse				X	
Peromyscus maniculatus	Deer Mouse					X
Sciurus griseus	Western Gray Squirrel				X	
S. niger	Fox Squirrel				X(1;2)	
S. tereticaudus	Round-tailed Ground Squirrel				X(1;2)	
Spermophilus beecheyii	California Ground Squirrel		X		X(3)	
Sylvilagus audoboni	Desert Cottontail		X	X	X(1;2)	X
Sylvilagus bachmanii	Brush Rabbit		X		X(1;2)	X
Taxidae taxus	Badger		X			
Thomomys bottae	Southern Pocket Gopher		X	X	X(1;2;3)	X
Vulpes microtis	Kit Fox		X			
Reptiles:			X		X(1)	
Clemmys marmorata	Southern California Pond Turtle			X	X(1;2;3)	X
Crotalus sp.	Rattlesnake		X	X	X(3)	X
Frog sp.	Frog				X(1)	
Phrynosoma coronatum	Horned Lizard		X		X(1)	
Birds:			X	X	X(1)	
Alcedinidae	Kingfisher				X(1)	
Ardea sp.	Heron		X			
Aythya affinis	Lesser Scaup		X			
Buteo jamaiencis	Red-tailed Hawk		X			
Catoptraphorus semipalmatus	Willet		X			
Cygninae	Water Fowl		X			
Fulica americana	American Coot					X
Gavia immer	Common Loon		X			
Phalacrocorax penicilliatus	Brandt's Cormorant		X			
Picidae	Woodpecker				X(2)	
Podicipe idae	Grebe				X(1)	
Podilimbus podiceps	Pied-billed Grebe		X			
Zenaidura macroura	Mourning Dove				X(1)	X
MARINE TAXON						
Mammals:						
Cetacean	Whale		X			
Enhydra leutris	Sea Otter		X			
Callorhinus ursinus	Southern Fur Seal		X			
Zalophus californianus	California Sea Lion		X			
Phoca vitulina	Harbor Seal		X			
Fish:			X		X(1;2;3)	
Chondrichthyes/Elasmobranch	Rays/Skates/Sharks	B/E/IT/OO	X	X	X(1)	X
Cynoscion parvipinnis	Shortfin Corvina	SB	X			
Damalichthys vacca	Pile Surfperch	SRRF/KB	X			
Embiotoca jacksoni	Black Perch	KB	X			
Embiotocidae sp.	Surfperches	IT/KB	X			
Galeorhinus galeus	Soupfin Shark	SB	X			
Genyonemus lineatus	White Croaker	SRRF	X	X		
Gymnothorax mordax	California Moray	IT	X			
Heterodontus francisci	Horn Shark	IT	X			
Hypsosetta guttulata	Diamond Turbot	BE	X			
Isurus oxyrinchus	Bonito Shark	OC	X			
Labridae sp.	Wrasses	-	X			
Myliobatidiformes	Rays	B/E/OO			X(1)	
Myliobatus californica	Bat Ray	BE	X		X(1)	
Osteichthyes/Teleost	Undifferentiated Bonny Fish	-		X	X	
Paralabrax clathratus	Kelp Bass	KB	X	X		
P. myriaster	Specklefin Midshipman	SB	X			
P. nebulifer	Barred Sand Bass	SB	X	X		
Paralichthyus californicus	California Halibut	SB	X			
Phanerodon furcatus	White Sea Perch	RRF	X			
Platyrhinoidis triseriata	Thornback	KB	X			
Porichthys sp.	Midshipman	SB	X			
Rhinobatos productus	Shovelnose Guitarfish	SB	X			
Roncador stearnsii	Spotfin Croaker	SRRF	X	X		
Sardinops sagax	Pacific Sardine	MW	X		X(2)	

TABLE 1 (cont)

Scientific Name	Common Name	Habitat	Presence of Remains			
			SDI-48	SDI-11767	SDI-9243	SDI-10148
Scomber japonicus	Pacific Mackerel	SB	X			
Sebastes sp.	Rockfish	KB	X		X(1)	
S. miniatus	Vermillion Rockfish	RRF	X	X		
S. paucispinis	Bocaccio	RRF	X			
S. rostrelliger	Grass Rockfish	IT	X			
Semicossyphus pulcher	California Sheephead	RB	X	X	X(1;2)	X
Sphyraena argentea	California Barracuda	SRRF	X			
Squatina californica	Pacific Angel Shark	KB	X		X	
Triakididae	Smoothhounds	-	X			
Umbrina roncador	Yellowfin Croaker	IT/SB	X	X		
Undiff. Cartilaginous Fish		-		X		
Urolophus halleri	Round Shark	BE	X			
Xenistius californiensis	Salema	KB	X			
Shellfish:						
Acanthina spirata	Angular Unicorn	RS/B/E	X			
Alia	Dove Shell	RS/B/E	X			
Anomia	Pearly Jingle	RS	X			
Argopecten aequisulcatus	Speckled Scallop	B/E	X	X	X(1;2;3)	X
Astraea undosa	Wavy Turban	RS/B/E	X	X	X(1;2)	
Balanus sp.	Barnacles	R/S	X			
Bulla	Bubble Shell	B/E	X			
Cerithidea californica	California Horn Shell	E		X		
Cerithiopsis cosmia	Regular Horn Shell	B/E	X	X		
Chione sp.	Clam	B/E	X	X	X(1;2;3)	
Chiton sp.	Chiton	RS/OB/OC	X	X	X(1;2;3)	
Collisella sp.	Limpet	RS/B/E	X	X	X(1)	
Conus	Cone Shell	RS	X			
Crepidula sp.	Slipper Shell	RS/B	X	X		
Crepipatella	Half-slipper Shell	RS	X			
Crucibulum sp.	Cup-and-saucer Limpet	RS	X			
Cypreaea sp.	Cowry Shell	RS	X			
Decapoda sp.	Crab	RS/SB/B/E	X	X	X(2)	
Diodora volcano	Volcano Limpet	RS	X			
Donax gouldii	Bean Clam	SB	X	X	X(3)	
Gastropods	Univalve Shell	-	X	X		
Glans sp.	Cardita	RS	X			
Haliotis sp.	Abalone	RS/OB	X	X	X(1;2;3)	X
Hinnites giganteus	Rock Scallop	RS/B	X	X	X(1)	
Homalopoma sp.	Turban Shell	RS	X			
Laevidcardium elatum	Cockle	B/E	X	X	X(1;2;3)	
Littorina sp.	Periwinkle	RS	X			
Lottia gigantea	Owl Limpet	RS	X			
Lucapinella	Keyhole Limpet	RS	X			
Macoma sp.	Macoma	B/E	X			
Mactra sp.	Surf Clam	B/E	X			
Megasurcula sp.	Turrid Shell	B/E	X			
Megathura crenulata	Giant Keyhole Limpet	RS	X	X		
Melampus	Salt Marsh Snail	B/E	X			
Modiolus capax	Capax Horsemussel	RS/B	X	X		
Mytilus sp.	Mussel	RS/B	X	X	X(1)	
Nassarius perpinquis	Fat Nassa Surf Clam	SB/B/E	X	X		
Nassarius tegula	Mud Nassa Surf Clam	SB/B/E		X		
Neverita reclusiana/polinices	Reclus's Moon Snail	SB/OO/B/E			X	
Norrisia norisi	Norris' Top Shell	RS	X			
Notoacmaea insessa	Seaweed Limpet	KB	X			
Nuttallia	Purple Clam	B/E	X			
Olivella biplicata	Beatic Olive Shell	SB/B/E	X	X		
Opalia sp.	Wentletrap	RS		X		
Ostrea lurida	Oyster	RS/B/E	X	X	X(1;2;3)	
Pododesmus	Jingle Shell	RS	X			
Polinices sp.	Moon Snail	B/E	X	X	X(1;2)	
Pollicipes sp.	Crab	RS	X	X		
Protothaca sp.	Littleneck Clam	B/E	X	X		
Pseudochama exogyra	Reversed Chama	RS	X	X		
Saxidomus sp.	Thick-shelled Clam	RS/SB	X	X		
Scaphopoda Class	Tooth Shell	B/E	X			
Semele decisa	Clipped Semele	RS/B	X	X		
Septifer/Hormomya	Mussel	RS	X			
Serpulorbis squamigerus	Scaled Worm Shell	RS	X			
Spisula	Dish Clam	SB	X			
Strongylocentrotus pupuratus	Purple Sea Urchin	RS	X			
Tagelus californianus	California Jackknife Clam	B/E	X	X		
Tegula sp.	Turban	RS	X	X		
Tivela stultorum	Pismo Clam	SB	X	X		
Trachycardium quadragenarium	Spiny Cockle	B/E	X	X		
Tresus	Gaper	B/E	X			
Trophonopsis lasius	Sandpaper Trophon	SB	X	X		
Volvarina taeniolata	California Marginella	RS	X			

Key to Fish Habitats:
B - Bay
E - Estuary
IT - Intertidal
KB - Kelp Bed
OB - Open Bay
OC - Open Coast
RRF - Deep Rocky Reef
SB - Sandy Bottom
SRRF - Shallow Rocky Reef

Key to Shellfish Habitats:
B - Bay
E - Estuary
KB - Kelp Bed
OO - Open Ocean
RS - Rocky Shore
SB - Sandy Beach

Note:
(1) Horizon 1: Carrico et al. 1994
(2) Horizon 2: Carrico et al. 1994
(3) McDonald et al. 1994

80 BP, 1270 ± 80 BP, and 1760 ± 80 BP, placing occupation in the Early to Transition Periods (Kyle and Gallegos 1993).

The 1992 Gallegos & Associates excavation of 51 1x1 m units recovered a majority of lithic tools and debitage resulting from manufacture and use of groundstone resurfacing/resharpening tools, a chert biface, obsidian, serpentine, manos and metates, and faunal remains. The faunal analysis identified small-to-large terrestrial mammal, bird, amphibian, reptile, and fish (Kyle and Gallegos 1993).

RESULTS OF COMPARISON

The percentage of species for each taxon was tabulated by site in order to show differences between sites. The pie charts (Figure 2) and bar graph (Figure 3) illustrate those percentages in the following discussion for each site.

SDI-48

Site SDI-48, situated closest to maritime resources, revealed in descending order: 47% shellfish (n=60/128), 28% fish (n=36/128), 12% terrestrial mammal (n=15/128), 7% bird (n=9/128), 4% marine mammal (n=5/128), and 2% reptile (n=3/128). Taxa found only at this site include 60 species of shell fish, 36 species of fish, 15 species of land mammals, five species of sea mammals, and nine species of bird, rattlesnake, and horned lizard (see Table 1).

SDI-11767

Site SDI-11767, located approximately seven miles/11.2 kilometers inland, revealed 62% shellfish (n=33/53), 19% fish (n=10/53), 13% terrestrial mammals (n=7/53), 4% reptile/amphibian (n=2/53), 2% bird (n=1/53), and no marine mammal. Species exclusive to this site include undifferentiated cartilaginous fish, California horn shell, mud nass surf clam, and wentletrap shell (see Table 1).

SDI-9243

Site SDI-9243, located approximately 15 miles/24 kilometers from the coast, revealed 39% terrestrial mammal (n=20/53), 26% shellfish (n= 14/53), 17% fish (n=9/53), 9% reptile/ amphibian (n=5/53), 9% bird (n=5/53), and no marine mammal. Species found only at this site include coyote, rock squirrel, cat sp., bobcat, California pocket mouse, San Diego pocket mouse, fox squirrel, round-tailed ground squirrel, western gray squirrel, woodpecker, grebe, rays, and Recluz's moon snail (see Table 1).

SDI-10148

Site SDI-10148, the most inland site in this study at approximately 16 miles/26 kilometers from the coast, revealed 49% terrestrial mammal (n=8/16), 13% shellfish (n=2/16), 13% bird (n= 2/16), 12% reptile/amphibian (n=2/16), and no marine mammal. Species found exclusively at this site are deer mouse and American coot (Table 1).

Species represented at all sites include artiodactyla, rabbit/hare, woodrat, gopher, rattlesnake, rays/skates/sharks, sheephead, speckled scallop, and abalone (see Table 1).

CONCLUSIONS

In comparing the faunal analyses from sites SDI-48, SDI-11767, SDI-9243, and SDI-10148, several trends became apparent. The pie charts diagramming the percentages of the number of species in each taxon from each site reveal that the site closest to the coast (SDI-48) is the only site where sea mammal remains occur. The amount of maritime shell is generally greater when the site is situated closer to the coast, and as the distance away from the coast increases, the percentage of the number of marine species decreases. Also interesting is the fact that as the distance inland increases, the number of terrestrial mammal species increases regardless of the occupational period. The total number of species within a taxon used for this study does not represent the only species that may have been present at the sites, it only represents those specific bones that were preserved and identified by the analyst.

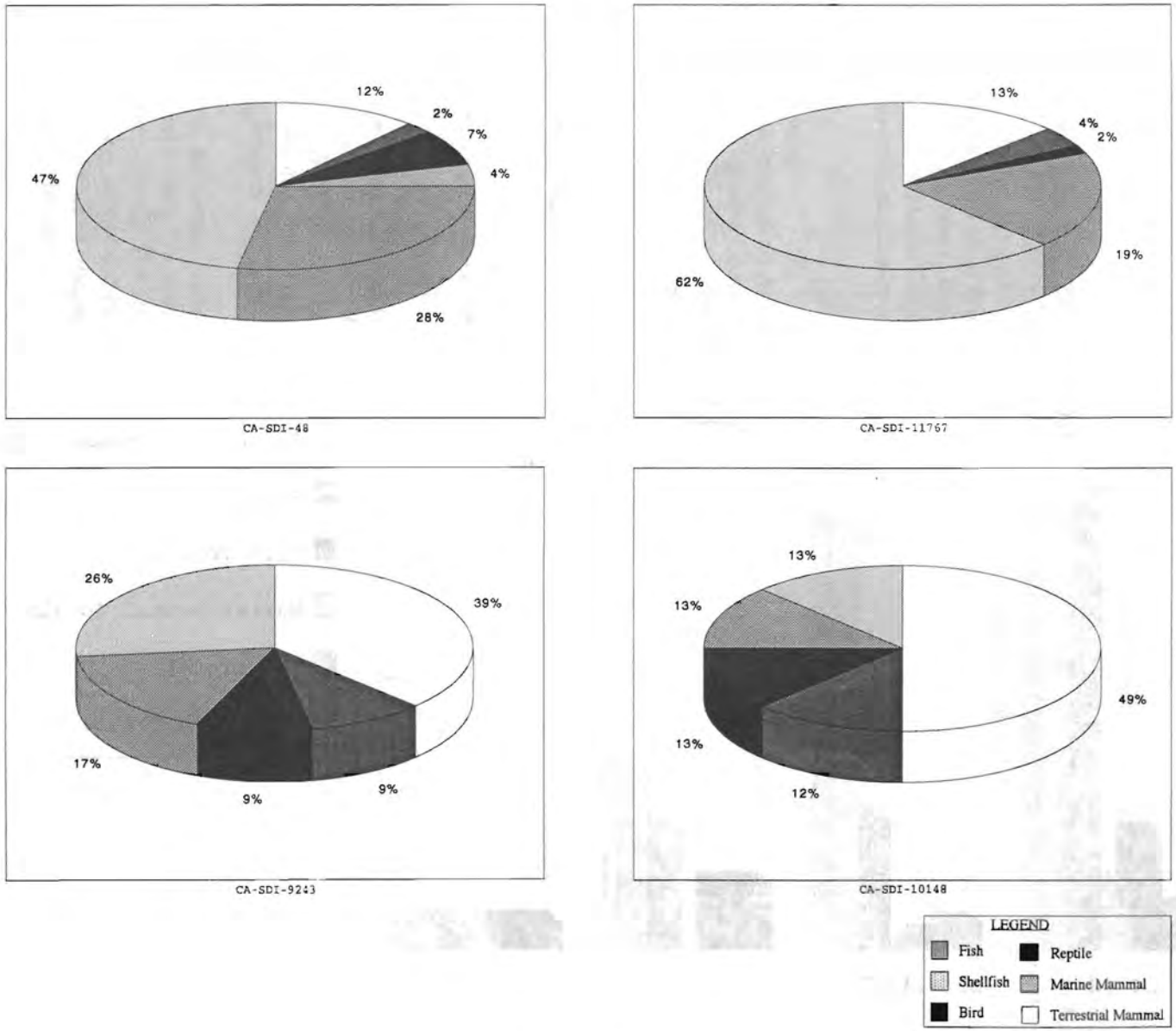

Figure 2. Percentages of fauna taxon from SDI-48, SDI-11767, SDI-9243, and SDI-10148.

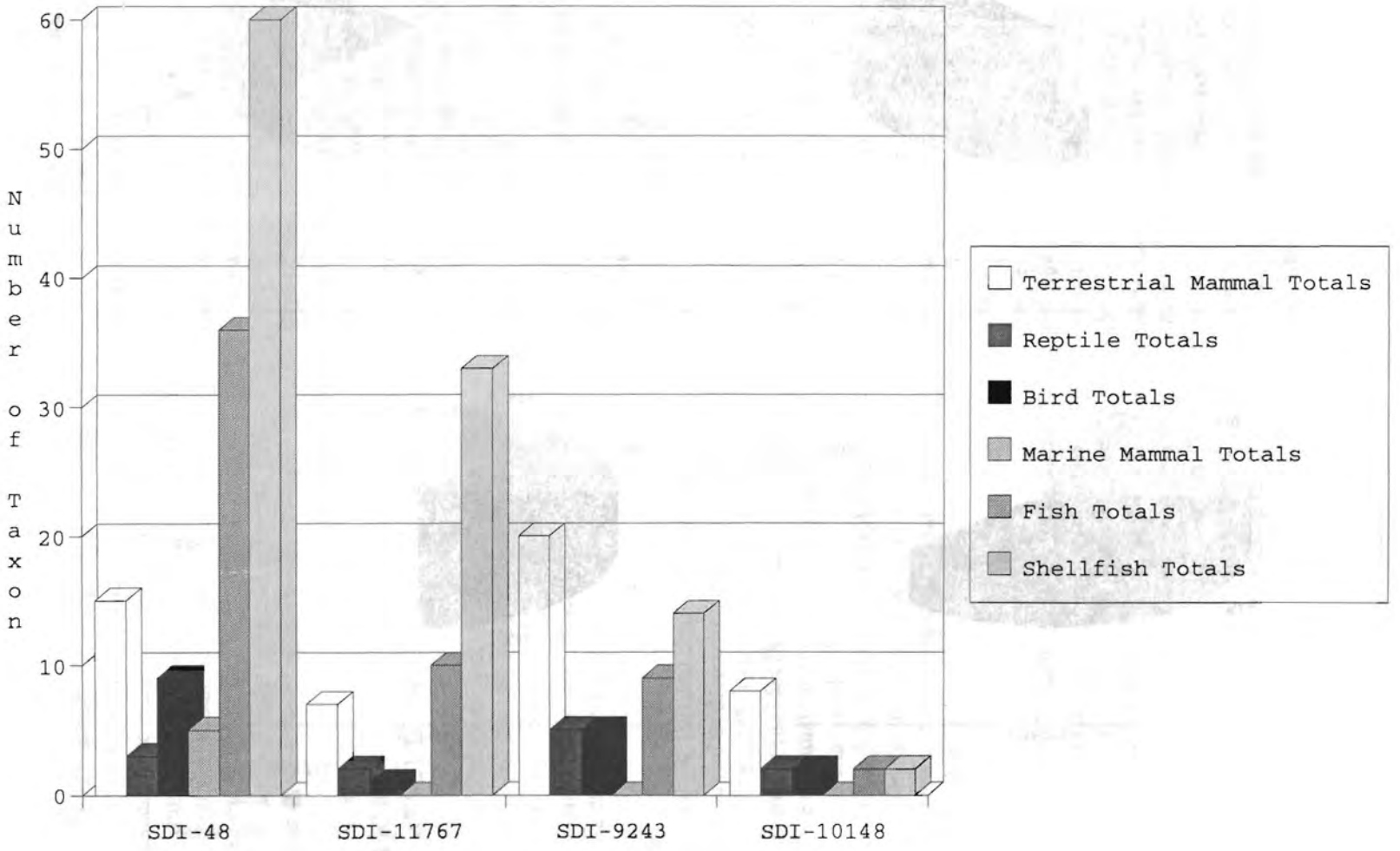

Figure 3. Bar graph showing number of taxon by site number.

In conclusion, this study supports the theory that Native American people exploited those resources closest to their habitation site as a majority, but also transported or traded certain faunal resources such as sheephead and some shellfish to inland sites as well.

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