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Biological Inventory
In
Conjunction with the Las Vegas Wash Unit,
Colorado River Basin Salinity Control Act
Title II (P. L. 93-320)

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INTRODUCTION

The present report is a biological inventory in conjunction with the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II. The location and limits of the project are shown in Fig. 1. The boundaries of the project encompass sections of North Las Vegas, Las Vegas, East Las Vegas and areas along Las Vegas Wash extending to its drainage point in Las Vegas Bay in Lake Mead. Therefore, it encompasses a wide array of ecological situations and landscapes ranging from essentially natural to various stages of urban development.

This biological inventory presents basic ecological classifications, descriptions of vegetation, lists of vascular plants and vertebrates known to occur in the area. Each major group, i.e., plants, fish, amphibians, reptiles, birds and mammals are characterized ecologically by biotic community. Basic life history data are given for all species of vertebrates found on the project area. Species of special status such as threatened, endangered, protected or of game status are further discussed.

Previous reports including biological data are the four quarterly reports from the Las Vegas Valley Water District to the Governor and the Legislative Commission (Sept. 1, 1971; Dec. 1, 1971; Mar. 1, 1972; June 1, 1972). The first three reports include summaries of the quarterly reports from the University of Nevada, Las Vegas on the study by Bradley and Niles (1973) whereas, the June, 1972 report includes a summary

of the final report of Bradley and Niles (1973).

The report by VTN Nevada and Jones and Stokes Associates, Inc., (Nov. 15, 1972) to the Las Vegas Valley Water District includes biological data from essentially these sources, Bradley and Deacon (1967); Bradley and Niles (1973) and a checklist of the avifauna by Mr. C. S. Lawson. Their report as a whole, however, shows a lack of knowledge and ecological awareness of the Mojave Desert and Las Vegas Valley area and, therefore, it is a misrepresentation of the biota and ecology of Las Vegas Valley.

METHODS AND PROCEDURES

This report is based largely upon the significant literature, University of Nevada, Las Vegas biological museum and herbarium records, unpublished data of current investigators and previous reports by Bradley and Deacon (1967), Bradley and Niles (1973), Miller (1974), and Deacon (1975). Biotic community classification is basically that developed for Southern Nevada by Bradley and Deacon (1967). Basic checklists of plants and vertebrate animals are based on the above sources and other works which are cited in the appropriate sections. Mapping of the vegetative components by biotic community was based on general reconnaissance of the study area in correlation with analysis of aerial photographs supplied by the Bureau of Reclamation.

We wish to credit the efforts of the following individuals who aided in the compilation of this report: Dr. James E. Deacon and Mr. John R. Baker supplied and analyzed the ichthyological and limnological data. The basic checklist of the avifauna was supplied by Mr. C. S. Lawson, who has been compiling avian data in the southern Nevada area for over a ten year period. Dr. Michael J. O'Farrell supplied distributional and life history data for the bats of the southern Nevada area. Mr. James Holland and Mr. Dennis Schramm compiled portions of the plant checklist and assisted in the vegetative mapping of biotic communities.

BIOTIC COMMUNITIES

Biotic communities are natural assemblages of plants and animals which occupy a particular area. Since many animals, particularly vertebrates, occupy more than one community, biotic communities are best recognized and determined on the basis of vegetation. Biotic communities of southern Nevada have been classified and discussed by Bradley and Deacon (1967) and with some modification for the present report are listed in Table 1. Brief characteristics of each community are given below. A list of total acres and percent of total acreage for each biotic community is given in Table 2.

Creosote Bush Community. Creosote bush communities are widespread and make up the dominant biotic community at

Table 1. Classification of biotic communities for the study areas of the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II, Study Area.

Biotic Community:

I. Terrestrial

Zonal Community Type

Desert Shrub Vegetation Type

Creosote Bush Community

Transzonal Community Type

Desert Shrub Vegetation Type

Salt Bush Vegetation Community

Shrub and Woodland Vegetation Type

Desert Riparian Community

Riparian and Cliff Community

Transitional Riparian Community

Azonal Community Type

Barren Community

Urban Community

II. Hydric and Aquatic

Marsh Community

Open Water Community

- 1) ponded (including Las Vegas Bay)
 - 2) moving
-

elevations below 4,000 feet in the Mojave desert. This is the most commonly encountered community in the study area occupying approximately 9,960 acres (68.6% of the total area). It is found in both flat and mountainous terrain except in areas of large rock outcroppings (barren areas) or well-developed dry wash systems. Co-dominants of this community are creosote bush and burro bush. Commonly, burro bush is more abundant and occupies more foliar cover than creosote bush, however, the community is named for the more widespread species. Vegetative cover is sparse and usually varies between 1 to 5% ground cover (Bradley, unpublished data).

Saltbush Community. Saltbush communities commonly occur as a mosaic in relation to the drainage systems where some accumulation of soil salts occur (usually between 1 to 6%; the percentage of salt in air dry soil is approximated by multiplying the 1.5 conductivity reading by 0.3, after Richards, 1954). Common plant indicators are species of Atriplex, commonly called saltbush, particularly shadscale, wingscale, cattle spinach and quailbush. In more saline portions of the community, halophytes such as inkweed and pickle-weed dominate. Ground cover is usually high compared to creosote bush, ranging from 6 to 20%. Stands of this community are widely scattered throughout the study area occupying approximately 420 acres (2.9% of the total area).

Table 2. Total acres and percent of total acreage of biotic communities in the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II Study area

Biotic Community	Total Acres	Percent of Total Acreage	
Creosote Bush	9,960	68.6	69.0
Saltbush	420	2.9	2.9
Riparian Cliff	200	1.4	1.4
Transitional Riparian	1,650	11.4	11.4
Barren	410	2.8	2.8
Urban	220	1.5	1.5
Marsh	1,100	7.6	7.6
Open Water (excluding Las Vegas basin)	60	0.4	0.4
	<u>14,020</u>	<u>96.6</u>	
Desert Riparian	420	2.9	2.0
	<u>14,440</u>	<u>99.5</u>	<u>99.9</u>

Desert Riparian Community. Desert riparian communities are associated with drainage systems where there is significant wash expansion and associated mesic conditions. Vegetative composition may be similar to that of the creosote bush community, but exhibits more luxuriant growth and higher plant cover. In larger washes, however, there are definite plant indicators such as cheesebush, mesquite, catclaw, desert willow, and occasionally salt cedar. Plant cover is higher than surrounding desert scrub community and usually varies between 5 to 40%. Approximate acreage for this community in the study area is 420 (3.3% of the total area).

Riparian Cliff Community. This community commonly occurs along washes, canyons, cliffs and rimrock areas at elevations above 5,000 feet. Small areas of cliff and rimrock found on the study area might be considered as lower extensions of this community, however, vegetative composition is primarily that of associated communities. These areas are so small in extent that they are not mappable at the scale of the vegetative map. Ground cover in this community varies between 3 to 10%. Approximate acreage for this community within the study area is 200 acres (1.4% of the total).

Transitional Riparian Community. Transitional riparian community as considered in this report is largely comparable to the stream riparian as described by Bradley and Deacon

(1967). It occupies various areas adjacent to the Las Vegas Wash where permanent water is found. It is also encountered in other sections of the study area where the water table is near the surface. The vegetative structure is either shrub woodland or woodland depending upon the location. Dominant woodland species include salt cedar, honey mesquite and occasionally cottonwood. Associated shrubs are usually halophytes such as inkweed, pickleweed or quailbush. Cover varies greatly ranging from approximately 15 to 100%. Approximate acreage for this community within the study area is 1,650 acres^{11,875} (11.4% of the total area).

Barren Community. Barren communities are those which largely lack vegetative cover and occur in association with areas of extreme rock exposure. Approximate acreage for this community is 410 (2.8% of the total).

Urban Community. This community is best characterized by the presence of man-made development, i.e., housing, roads or disturbance of the naturally occurring vegetative community usually in the form of grading or ground leveling. This community occurs in many forms ranging from closely spaced housing developments to widely spaced many aced ranches. Quite often, the urban development of an area forms a mosaic pattern interspersed with the natural vegetation. In these situations, vegetative mapping is difficult and separation of the urban sections from surrounding plant communities was impossible to show on paper. This form of development occupies 220 acres (1.5% of the total area) within the study area.

Marsh Community. This community is restricted in distribution to the drainage system commonly referred to as Las Vegas Wash. It is characterized by emergent hydrophytic plant species which are associated with standing water or extremely wet soil. The dominant plant species are cattail and bulrush and in some instances, common reed grass. Plant growth varies greatly in size and may, in some instances, form extensive stands of tangled growth, which often exceed 100% ground cover. This community occupies approximately 1,100 acres (7.6% of total area) in the study area.

Open Water Community. This community is found along the stream portion of Las Vegas Wash and Las Vegas Bay as included in this report. It may be separated into the stream portion representing moving water and areas of standing water including Las Vegas Bay. There are also many small ponds along the Las Vegas Wash including man-made tailing and evaporation ponds below the County and City Sanitation plants. These ponds are considered open-standing water and the vegetation associated with them is the same described for the marsh community.

The vegetation along the shoreline of Las Vegas Bay is primarily transitional riparian although some marsh vegetation does occur at the mouth of the larger coves and inlets.

Exclusive of Las Vegas Bay, mapping of open water was impossible in that the bodies of open water found on the

study area are all very restricted in size. With the exception of the tailing ponds, most of which are dry, no significant body of open water (40 acres or greater) exist in Las Vegas Wash.

A crude estimate of the acreage of open water exclusive of Las Vegas Bay, is 60 acres (0.4% of total area) within the study area.

VASCULAR PLANTS

A total of 227 species representing 41 families are included in the basic list. The more important families are Compositae (49 species), Graminae (21 species), Cruciferae (13 species), Leguminosae (12 species) and Polemoneaceae (11 species). This is a reasonable representation of the number of families and species in a desert area. Some additional species, especially annuals, could be added to the checklist by intensive study. This is particularly true for creosote bush and desert riparian communities.

The distribution of plant species in the various biotic communities is given in Appendix I and a comparison of plant species diversity is shown in Table 3. The low number of probable and hypothetical species on the list are due to: 1) a reasonably adequate knowledge of species distributions for the biotic communities except barren and urban and, 2) a conservative approach for listing probable and hypothetical distributions. With adequate study, a much larger list of weedy species associated with urban habitats could be

Table 3. Comparison of plant species diversity in different biotic communities in the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II, Study Area.

Abundance and Occurrence	Creosote Bush	Salt-bush	Desert Riparian	Riparian and Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Occurrence									
Abundant	111	33	76	5	8	5	1	8	4
Common	81	17	65	7	9	1	0	5	13
Rare	14	3	15	0	2	1	0	3	2
Probable	4	11	14	4	6	1	0	0	0
Hypothetical	0	1	3	1	0	5	4	0	0
Total	210	65	173	17	25	13	5	16	19

developed. Creosote bush and desert riparian communities show the highest plant species diversity with many abundant and common species. Both communities are widespread and share many species in common and represent the bulk of plant species found in the lower desert. The saltbush community which ranks third in total species has a relatively low species diversity, especially of annuals, due to an increased perennial cover and high salinity which is unsuitable for germination of many desert species. Transitional riparian and marsh communities are low in diversity due to the greatly increased plant cover of dominant species. The low species diversity for open water and barren communities is apparent, since they represent unsuitable habitats for terrestrial plant development. The riparian cliff community is not well established and extremely limited in area due to the low elevation, hence plant species diversity is low.

HISTORICAL VEGETATIVE CHANGES IN LAS VEGAS WASH

Las Vegas Wash represents the lower portion of natural drainage system, Pluvial Las Vegas River, which drains into the Colorado River at Lake Mead (Hubbs and Miller, 1948). This ancient stream course can be traced from Indian Springs south to Corn Creek Spring, Tule Springs, Las Vegas Creek and into Las Vegas Wash. Recent studies provide a general picture of environmental changes over the last 30,000 years (Haynes, 1967; Mehringer, 1967). At the beginning of this time span, Pluvial Las Vegas River was fully functional, discharging into the Colorado River. From approximately

30,000 to 15,000 years, Pluvial Lake Las Vegas occurred as a widespread, shallow lake over much of the valley. During the period 14,000-6000 years ago, Indian Springs, Corn Creek Spring, Tule Springs and numerous springs in the vicinity of present day Las Vegas were active and drained into Pluvial Las Vegas River. Later, with increased aridity and lowering of the water table, spring activity decreased and sometime between 4,000 and 1,000 years ago Pluvial Las Vegas River became largely a dry wash.

Early explorers moved up Las Vegas Wash toward an oasis of spring-fed meadows at the present site of Las Vegas. After settlement by the Mormons in the 1850's, cattle ranches occupied much of the valley and artesian ^{wells} springs were used to cultivate crops of hay. Rapid population growth and increased water utilization since the 1930's have resulted in a rapid and continuing decline in ground water levels. Few springs in Las Vegas Valley are now active and Vegas Creek, the last remnant of Pluvial Las Vegas River, largely dried up in the late 1940's (Bradley and Deacon, 1967). Water now entering Las Vegas Wash is largely effluent and some underground seepage.

The present transitional riparian, marsh and open water communities are now maintained largely through effluent and an unknown amount of underground seepage. As a result of the bulk of water being nutrient rich, effluent marsh communities exhibit a higher productivity and standing crop than stands originally occurring in Las Vegas Wash before sewage treatment

plants were present. Total acreage of marsh and associated communities has declined drastically, however, with lowering of the water table, decreased spring activity, drying up of Las Vegas Creek, and increased urbanization of Las Vegas Valley.

VERTEBRATE ANIMALS

The ecological distribution and characterization of life histories of vertebrates are discussed in appropriate sections by vertebrate class.

FISH

Habitat Description. Waters in Las Vegas Wash are characteristically high in nutrients and total dissolved solids (TDS) and flow through a Cattail-Bulrush Marsh community. The Clark County and Las Vegas sewage treatments contribute both to the total flow and nutrients in Las Vegas Bay.

Nutrient enrichment from Las Vegas Wash has resulted in algal blooms and polluted eutrophic conditions in Las Vegas Bay. Conditions in Boulder Basin have remained naturally eutrophic because of dilution and utilization of nutrients in Las Vegas Bay (Deacon, 1975). Nutrient levels are summarized in Table 4.

Lake Mead is a warm monomictic lake with thermal stratification developing in May. A thermocline becomes established at 15-20 meters in July and August when water temperature reach 30-35°C. Mixing begins in September and is completed by December when water temperatures are 9-10°C.

During summer stratification a negative heterograde oxygen

Table 4. Phosphorus and nitrogen concentration in mg/l at Las Vegas Wash (LVW), Las Vegas Bay (LVB) and Boulder Basin (BB) 1974, (Deacon, 1975).

Date	Depth	TOTAL PHOSPHORUS			NITRITE-NITRATE NITROGEN		
		LVW	Station		LVW	Station	
			LVB	BB		LVB	BB
May 24	0	4.86	0.057	0.020	7.73	0.16	.22
	10		0.067	0.021		0.17	.20
	20		0.162	0.021		0.33	.31
	30		0.308	0.019		0.41	.41
July 12	0	4.98	0.030	0.012	9.07	0.03	.05
	10		0.025	0.017		0.04	.05
	20		0.052	0.013		0.40	.31
	30		0.026	0.012		0.51	.44
Sept. 13	0	4.07	0.025	0.011	8.45	.02	.06
	10		0.044	0.012		.02	.02
	20		0.059	0.012		.39	.45
	30		0.086	0.012		.41	.51
Nov. 15	0	4.69	0.043	0.013	5.54	.21	.23
	10		0.040	0.013		.17	.22
	20		0.043	0.017		.16	.20
	30		0.044	0.016		.17	.06

profile develops in association with the thermocline throughout Lake Mead. Metalimnetic oxygen depletion has been most severe in Las Vegas Bay where oxygen levels below 1 mg/l have been found. In Boulder Basin oxygen levels usually do not fall below 2 mg/l in the metalimnion. Oxygen concentrations in the hypolimnion do not become depleted, remaining 60-70% saturated through summer stratification.

Distribution and Life Histories. The distribution and life histories of fishes in Las Vegas Wash and Boulder Basin are summarized in App. II (Jones and Sumner, 1954; Deacon, 1971; Lockard, 1971 and 1972; Wood, 1973 and 1974; Padilla, 1975). The Western Golden Shiner (Notemigonus chrysoleucas) and the Bonytail Chub (Gila robusta) have been reported in the lower basin (Jones and Sumner, 1954). The presence of the latter has not been reported and probably no longer occurs in the lower basin. The Western Golden Shiner has been heavily used as live bait and may have established small populations in Lake Mead.

There are a number of factors limiting or regulating reproduction and distribution of fishes in Lake Mead. Allan and Romero (1975) have determined that fluctuating water levels, wind and wave action, water temperature and predation can affect nesting success of Largemouth Bass and poor survival of fry may be the result of limited food supply. These factors would also affect Green Sunfish, Bluegill and Black Crappie which utilize very similar habitat. Reproduction of Salmonids does not occur because of the absence of migratory streams although

they do become reproductively active in the fall. ^{early spring} High water temperatures in the epilimnion and low oxygen levels in the metalimnion limit the distribution of Salmonids to the hypolimnion during summer stratification. Oxygen levels also limit the occurrence of warm water fishes in the metalimnion for any extended period although large populations of Shad have been observed in this region (Deacon, 1975).

Biological and Economical Importance. Of the 12 species of fish in Boulder Basin, only three are non-game fish, Threadfin Shad, Humpback Sucker, and European Carp. Threadfin Shad are the main forage base for most of the game fish and its introduction has helped improve the fisheries in Lake Mead. The European Carp is a very abundant and undesirable fish and has been reported as predators on Largemouth Bass nests (Allan and Romero, 1975) and may have some effect on game fish populations.

Largemouth Bass made up 40% of the catch composition in 1974 and were the most important game fish followed by Black Crappie, Channel Catfish, Rainbow Trout, and Bluegill (Padilla, 1975). Coho Salmon, Cutthroat Trout and Striped Bass made up less than 3% of the 1974 catch.

The Mosquitofish has been introduced as a means of mosquito control. Its presence in Las Vegas Wash may have some limited effects on insect populations.

Of the 12 species of fish found in the Boulder Basin, one, the native Humpback Sucker, is listed as threatened on the Nevada endangered species list (see Table 7).

AMPHIBIANS

The ecologic distribution and comparative abundance of amphibians by biotic community is given in App. III. Woodhouse's Toad is the only amphibian which may be found within the more mesic portions of terrestrial communities which are not in close contact with marsh or open water. All of the species listed occur in marsh open water and transitional riparian with the exception of the Tiger salamander, whereas the more aquatic species, the bullfrog, leopard frog, red-spotted toad and pacific tree frog are most abundant in marsh and open water. The introduced tiger salamander represents a special case, in that it was first found in the middle 1960's in Las Vegas in association with urban development (Bradley and Deacon, 1966). At the present time, the species also occurs in marsh and open water.

List^{ed} history information for amphibians is given in App. IV. All species show reduced activity and/or hibernation during the colder months in the Las Vegas area. The only species with a special status is the bullfrog, which is protected by state game laws. No amphibian species are listed as threatened or endangered on either the Federal or State lists.

REPTILES

Distribution and relative abundance of reptiles is given in App. V. There are no reptile species which are characteristic of marsh or aquatic water communities except the western soft shell turtle. Fourteen species of snakes occur on the study area with their primary associations in terrestrial communities,

especially creosote bush and desert riparian. In some instances, however, certain species such as the red racer, the gopher snake and the sidewinder are abundant in habitats adjacent to water such as riparian cliff and transitional riparian as these areas have an abundant food supply.

Several snakes including the sidewinder are present in the urban communities.

Thirteen species of lizards are found on the study area and with few exceptions, are most abundant in creosote bush or desert riparian communities. The chuckawallas find suitable habitat in some areas considered as barren. The yucca night lizard is common in transitional riparian and urban habitats where litter is available for shelter.

The desert tortoise is common in creosote bush, desert riparian and urban communities. This species is protected by state law and is considered by some authorities to be threatened or endangered because it is often killed while crossing highways and is often kept in captivity by man. Studies in progress in the Las Vegas area show that it is common or even abundant in suitable habitat adjacent to highways and in areas of high recreation use.

The Gila Monster, like the Desert Tortoise, is also protected by state law (see Table 7).

Life history information for reptiles is shown in Appendix VI. As expected, due to their poikilothermic nature, reptiles are largely inactive or in hibernation

during the colder months. Smaller species, however, such as the side-blotched lizard and sidewinder do exhibit some above-ground activity on warm days during the winter months.

BIRDS

The seasonal use, occurrence and abundance of the avifauna in the study are given in Appendix VII. These data represent material taken from several sources including: Austin and Bradley, (1971); Bradley and Deacon, (1967); Miller, (1974); and Austin, (unpublished data). The basic species list was compiled by Mr. C. S. Lawson.

The diversity of birds within the study area is quite high. A total of 246 species representing 50 families occur here. The heaviest utilization of both the developed area of Las Vegas and the marsh condition found in Las Vegas Wash is seasonal in spring and fall when normal migration occurs. A large number of the total species which occur here are transient in one or more of the biotic communities found in the study area and this accounts for the seasonality of use. The creosote, saltbush and desert riparian are the most heavily utilized communities by the majority of permanent and winter resident species excluding water birds. The latter group is restricted almost entirely to the aquatic environment found in marsh and open water communities. This is particularly true of many water fowl which require standing water for feeding.

The total density of birds within the study area is

Table 5. Hunting and Trapping Seasons Established for Game Animals by Nevada Fish and Game Commission for 1974.

Animal	Season Open	Season Closed
<u>Hunting Season</u>		
Duck (Split Season)	28 Sept. 16 Nov.	25 Oct. 19 Jan.
Geese	16 Nov.	19 Jan.
Dove	1 Sept.	20 Oct.
Quail	28 Sept.	1 Dec.
Rabbit	28 Sept.	28 Feb.
Bighorn Sheep (Bombing Range)	16 Nov. 14 Dec.	15 Dec. 29 Dec.
<u>Trapping Season</u>		
Fur Bearer	26 Oct.	16 Mar.

variable depending on season. Total bird densities for creosote bush, desert riparian, transitional riparian and marsh communities are given by season in Table 6. No data is available for the other five communities in the study area. These data give some indication of community use by birds, both yearly and by season. The total density of birds is highest in the marsh community if water birds are included in this figure. If these species are excluded, the desert riparian and transitional riparian communities have the highest density, particularly during migration.

Life history data for birds found in the study area are presented in Appendix VIII. These data are taken primarily from Bent (1953). The categories of primary use of habitat and primary food habits are given for each species known to occur in the study area. Primary nest placement is listed only for those species which breed in one of the biotic communities found within the area. Species which do breed there are also expected to feed, water and rest within the same area. In those instances, the latter three categories are not listed under primary habitat use.

Special status where applicable is also given for each species. Unusual or accidental occurrence is also listed for some species. The hunting seasons for some birds as established by the Nevada Fish and Game Commission for 1974 are presented in Table 5. The hunting seasons for 1975 are not yet available.

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Special status where applicable is also given for each species. Unusual or accidental occurrence is also listed for some species. The hunting seasons for some birds as established by the Nevada Fish and Game Commission for 1974 are presented in Table 5. The hunting seasons for 1975 are not yet available.

Table 6. Total bird densities by season for selected biotic communities in the Las Vegas Wash Unit Colorado River Basin Salinity Control Act, Title II, Study Area. Values expressed as number per 100 acres. From Hiller (1974).

	Creosote Bush	Desert Riparian	Transitional Riparian	Marsh
<u>Spring</u>				
March thru May	21.5	110.7	79.3	103.1
<u>Summer</u>				
June thru August	14.7	117.6	76.4	153.5
<u>Fall</u>				
September thru November	28.7	47.7	64.6	53.8
<u>Winter</u>				
December thru February	29.9	99.9	110.0	81.1

Many bird species are protected by State and Federal law and two species, the Southern Bald Eagle (Haliaeetus leucocephalus) and the Peregrine Falcon (Falco peregrinus) are listed on both the State and Federal endangered list. (See Table 7). These two species are not common in the study area and probably occur only as transients.

In general, the occurrence and abundance of avian species with the Las Vegas Valley is unusually high for a desert environment (Miller, 1974). Seasonal use and overall mobility of this group of animals accounts for this situation somewhat. The occurrence of a large mesic-hydric environment such as Las Vegas Wash, however, is undoubtedly the controlling factor in the overall avian distribution in the study area.

MAMMALS

The distribution and relative abundance of mammals by biotic community is shown in Appendix IX. A total of 48 species of mammal (1 shrew, 18 bats, 2 rabbits, 17 rodents, 9 carnivores and 1 ungulate) are found on the study area. They vary greatly to the extent that they are habitat (community) specific in their distribution. For example, Crawford's desert shrew, muskrat, house mouse, western harvest mouse, and deer mouse are largely restricted to marsh or immediately adjacent communities, whereas almost all bat species are found in all communities. Carnivores and desert sheep, in general, have a wide ecologic

distribution and individuals may range through more than one community during their regular activities. Certain carnivores, such as skunks and raccoon are most abundant in the more mesic communities including marsh. The majority of rodents have their main distribution in the more arid, desert communities, but in some instances have their highest densities adjacent to the more mesic communities including marsh, where more food especially green vegetation is reasonably available. Green vegetation available for browse is necessary for successful reproduction for many desert rodents (Beatley, 1969; Bradley and Mauer, 1971, 1973; Bradley and Deacon, 1971).

Life history information for mammals is given in Appendix X. Hunting and trapping seasons for mammals found on the study area are listed in Table 5. Of particular significance are those species which do not exhibit year-round activity. For example, several rodents enter seasonal hibernation whereas most bats under suitable low temperature conditions enter both daily and seasonal hibernation. Several other species of bats are migratory and spend only a portion of the year in the Las Vegas area. The primary habitat usage by community is given in some detail in App. XI. It is apparent that mesic or hydric communities such as riparian and cliff, transitional riparian, marsh and open water are used for feeding and watering, whereas the more characteristic desert communities are used for resting, hibernation and breeding as suitable shelter in

the form of rock crevices, caves and mine tunnels occur in these communities. Most species also find both food, water, and in some instances, shelter under urban conditions. The combination of few and relatively unsuitable hibernals has forced several species into year-round flight activity (watering and feeding) even in the winter months (O'Farrell and Bradley, 1970). Several species of tree bats (silvery-haired bat, red bat and hoary bat) find shelter (resting, daily hibernating) in trees and only occur in the more typical desert communities during migration.

Other species, for example, most rodents exhibit year-round activity and due to limited home range size, individuals occur only in one community except in ectonal regions between communities. Most rodents are opportunistic or tend toward being omnivorous, although seeds and foliage usually are the most important food items. Even carnivores, in some instances are somewhat omnivorous, and ingest varying amounts of vegetative material, especially fruits.

Only one species, the spotted bat (Euderma maculatum), found in the study area is listed on the threatened and endangered list of Nevada Fish and Game Commission.

Table 7. State and Federally protected animals in the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II Study Area.

Species by Family	Protected by State Game Law	State endangered threatened or protected	Federal endangered threatened or protected	Enacted by
Fish				
Salmoidae				
Coho Salmon	Year-round season			General Regulation No. 1 Amendment No. 5 Amendment
Cutthroat Trout	same as above			same as above
Rainbow Trout	same as above			same as above
Catostomidae				
Humpback Sucker		Threatened		Section 501.11 and 501.065 Nevada Revised Statutes
Ictaluridae				
Channel Catfish	Year-round season			General Regulation No. 1 Amendment No. 5 Amendment
Serranidae				
Stripped Bass	same as above			same as above
Centrarchidae				
Bluegill	same as above			same as above
Green Sunfish	same as above			same as above
Largemouth Bass	same as above			same as above
Black Crappie	same as above			same as above

Table 7. (cont.)

Species by Family	Protected by State Game Law	State endangered threatened or protected	Federal endangered threatened or protected	Enacted by
Amphibians				
Ranidae				
Bullfrog	Year-round season			General Regulation No. 1 Amendment No. 5
Reptiles				
Helodermatidae				
Gila Monster		Threatened		501.110 NRS
Testudinidae				
Desert Tortoise		Threatened		501.110 NRS
Birds				
Pelecanidae				
Pelicans & Allies		Protected		501.065 NRS
Brown Pelican			Endangered	Endangered species Act 1973 (P.L. 93-205; 87 stat.
Falconiformes				
Vultures, Hawks Falcons & Eagles		Protected		501.065 NRS
Bald Eagle		Endangered	Endangered	Endangered species Act 1973 (P.L. 93-205; 87 stat. 88
Peregrine Falcon		Endangered	Endangered	205; 87 stat. 88

Table 7. (cont.)

Species by Family	Protected by State Game Law	State endangered threatened or protected	Federal endangered threatened or protected	Enacted by
Strigiformes				
Owls		Protected		501.065 NRS
Gruidae				
Little Brown Crane			Protected	Migratory Bird Treaty Act 40 Sta 735; 16 U.S.C. 703-711
Ardeidae				
Rails, Coots & Gallinules			Protected	same as above
Colapacidae				
Woodcock & Snipe			Protected	same as above
Columbidae				
Wild Doves & Pigeons			Protected	same as above
Cuculidae				
Roadrunner		Protected		501.065 NRS
Anatidae			Protected	Migratory Bird Treaty Act 40 Sta 735; 16 U.S.C. 703-711
Ducks	See Table 5			
Geese	same as above			
Phasianidae				
Gambels Quail	same as above			

Table 7. (cont.)

Species by Family	Protected by State Game Law	State endangered threatened or protected	Federal endangered threatened or protected	Enacted by
Mammals				
Leporidae				
Rabbits (except Black-tailed Jackrabbit)	See Table 5			General Regulation No. 1, Amendment No. 5
Bovidae				
Mountain Sheep	See Table 5			same as above
Canidae				
Kit Fox		Protected		501.110 NRS
Vespertilionidae				
Spotted Bat		Threatened		same as above

1. State laws are taken from the Nevada Fish and Game Commission General Regulation Number 1, effective May 15, 1974.
2. Federal laws are taken from the United States list of Endangered Fauna, effective May, 1974.

GLOSSARY

- Arboreal - Living in trees
- Benthic - Bottom regions of a lake
- Carrion - Dead animal material
- Epilimnion - The upper region of a stratified lake in which the water is uniformly warm and fairly turbulent.
- Hibernator - An animal which lives through the winter in a resting condition of reduced metabolic rate and a lowered body temperature.
- Homeotherm - An organism which is capable of regulating body temperature by internal heat production.
- Hypolimnion - The lower region of a stratified lake in which the water is cold and relatively non-turbulent.
- Littoral - The peripheral shallow areas of a lake.
- Lotic - Running water
- Mesic - Moderately moist habitat.
- Metalimnion - The transitional zone between the epilimnion and hypolimnion where the thermal gradient is the steepest (Thermocline).
- Pelagic - The open water region of a lake above the Thermocline.
- Poikilotherm - An organ^{ism} having no rapidly operating internal heat regulatory mechanism.
- Profundal - The open water region of a lake below the Thermocline.
- Riparian - Associated with the edge of rivers, dry washes, or currents of water.
- Sublittoral - The region of a lake below the littoral zone where the sediments are finer and there is no aquatic vegetation.
- Terrestrial - Using or having to do with the earth or land.
- Thermocline - The region of a lake of rapid decrease in temperature separating the epilimnion from the hypolimnion.
- Volant - Flying

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Species by Family	Creosote			Salt-Brush			Desert Riparian			Riparian & Cliff			Marsh			Trans-sitional			Open Water			Barren			Urban					
	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H			
Barley (<u>Hordeum leporinum</u>)	C																													
Indian Ricegrass (<u>Oryzopsis hymenoides</u>)	A			A			A																							
Common Reed (<u>Phragmites communis</u>)							A			A			A			C														
Nevada Blue Grass (<u>Poa nevadensis</u>)												C																		
Kentucky Bluegrass (<u>Poa pratensis</u>)												C																		
Squirrel tail (<u>Sitanion hystrix</u>)												C																		
Sand Dropseed (<u>Sporobolus cryptandrus</u>)									C			C																		
Mesa Dropseed (<u>Sporobolus flexuosus</u>)	C				X		C			C																				
Desert Needle Grass (<u>Stipa speciosa</u>)	A						A																							
Slim Tridens (<u>Tridens muticus</u>)	C						C																							
Fluffgrass (<u>Tridens pulchellus</u>)	A				X		A																							
Cyperaceae																														
Sedge (<u>Carex aurea</u>)												X			X									X						
Sedge (<u>Carex festivella</u>)												X			X									X						
Sedge (<u>Carex hassei</u>)												X			X									X						
Sedge (<u>Carex praegracilis</u>)												X			X									X						

APPENDIX II.

Abundance, Distribution and Life History of Fish in the Las Vegas Wash Unit,
Colorado River Basin Salinity Control Act, Title II Study Area.

Species by Family	Las Vegas Wash	Las Vegas Bay Boulder Basin	Habitat	Reproduction	Food
Clupeidae					
Treadfin Shad (<u>Dorosoma pentenense</u>)	-	abundant	pelagic	May - June	algae, zooplankton
Salmonidae					
Coho Salmon (<u>Oncorhynchus kisutch</u>)	-	rare	profundal-sublittoral	-	Shad, zooplankton
Cutthroat Trout (<u>Salmo clarki</u>)	-	rare	profundal-sublittoral	-	Shad, zooplankton
Rainbow Trout (<u>Salmo gairdneri</u>)	-	abundant	profundal-sublittoral	-	Shad, zooplankton
Catostomidae					
Humpback Sucker (<u>Xyrauchen texanus</u>)	-	rare	pelagic-littoral	March - April	algae, insects
Cyprinidae					
Goldfish (<u>Carassius auratus</u>)	rare		lotic	May - Aug.	algae
European Carp (<u>Cyprinus carpio</u>)	rare	abundant	pelagic-littoral	March - July	algae, insects, detritus
Ictaluridae					
Channel Catfish (<u>Ictalurus punctatus</u>)	-	abundant	benthic	May - July	omnivorous
Poeciliidae					
Mesquitofish (<u>Gambusia affinis</u>)	rare	-	lotic	May - Sept.	insects
Serranidae					
Stripped Bass (<u>Roccus saxatilis</u>)	-	rare	pelagic-sublittoral	-	Shad
Centrarchidae					
Bluegill (<u>Lepomis cyanellus</u>)	rare	common	littoral	April - Aug.	Shad, insects, zooplankton
Green Sunfish (<u>Lepomis macrochirus</u>)	-	common	littoral	April - Aug.	insects, zooplankton
Largemouth Bass (<u>Micropterus salmoides</u>)	-	abundant	littoral-sublittoral	March - June	Shad, zooplankton
Black Crappie (<u>Pomoxis nigromaculatus</u>)	-	abundant	littoral-sublittoral	March - May	Shad, zooplankton

APPENDIX III.

The Ecological Distribution and relative abundance of amphibians by biotic community in the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II Study Area. Values expressed as A = Abundant, C = Common and U = Uncommon. Asterick equals community indicator species.

Species by Family	Creosote bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Ambystomidae									
Tiger Salamander (<u>Ambystoma tigrum</u>)						U	U		U
Ranidae									
Bullfrog (<u>Rana cutesbiana</u>)					U	C	C		
Leopard Frog (<u>Rana pipiens</u>)					U	C	C		
Bufonidae									
Desert Toad (<u>Bufo punctatus</u>)				U	U	C	C		
Woodhouse's Toad (<u>Bufo woodhousei</u>)		U	U	C	C	U	U		
Hylidae									
Pacific Tree Frog (<u>Hyla regilla</u>)					U	C	C		

APPENDIX IV.

Life history information for amphibians in the Las Vegas Wash Unit, Colorado River Basin
Salinity Control Act, Title II Study Area.

Species by Family	Seasonal Use	Segments of Habitat Most Dependent Upon	Primary Food Habits	Special Status	Remarks
Ambystomidae					
Tiger Salamander (<u>Ambystoma tigrum</u>)	Spring, summer, fall	Rock, fallen vegetation, wet soil	Invertebrates, terrestrial, aquatic		Hibernates in winter
Ranidae					
Bullfrog (<u>Rana catesbeiana</u>)	Spring, summer, fall	Riparian bank, aquatic littoral zone	Invertebrates, terrestrial, aquatic	Protected by State Game Laws	Hibernates in winter
Leopard Frog (<u>Rana pipiens</u>)	Spring, summer, fall	Riparian bank, aquatic littoral zone	Invertebrates, terrestrial aquatic		Hibernates in winter
Bufonidae					
Desert Toad (<u>Bufo punctatus</u>)	Spring, summer, fall	Root tangles, riparian bank, wet soil	Invertebrates, terrestrial, aquatic		Hibernates in winter
Woodhouse's Toad (<u>Bufo woodhousei</u>)	Spring, summer, fall	Root tangles, riparian bank, wet soil	Invertebrates, terrestrial, aquatic		Hibernates in winter
Hylidae					
Pacific Tree Frog (<u>Hyla regilla</u>)	Spring, summer, fall	Root tangles, riparian bank, littoral zone	Invertebrates, terrestrial, aquatic		Hibernates in winter

APPENDIX V. The distribution and relative abundance of reptiles in the Las Vegas Wash Unit, Colorado River Basin
Salinity Control Act, Title II Study Area.

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Tran- sitional Riparian	Marsh	Open Water	Barren	Urban
Leptotyphlopidae									
Western Blind Snake (<u>Leptotyphlops humilis</u>)			U	U	U				
Colubridae									
Spotted Leaf-nosed Snake (<u>Phyllorhynchus decurtatus</u>)	C	C	C						
Coachwhip (<u>Masticophis flagellum</u>)	A	C	A	A	A			U	U
Western Patch-nosed Snake (<u>Salvadora hexalepis</u>)	C	C	C	U				P	P
Glossy Snake (<u>Arizona elegans</u>)	A	C	A	U	U			P	
Gopher Snake (<u>Pituophis catenifer</u>)	A	A	A	A	A	P		U	U
Common King Snake (<u>Lampropeltis getulus</u>)	R	R	R	P	P				
Long-nosed Snake (<u>Rhinocheilus lecontei</u>)	R	R	R	H	H				
Western Ground Snake (<u>Sonora semiannulata</u>)	R	R	R		R				
Western Shovel-nosed Snake (<u>Chionactis occipitalis</u>)	C	R	R						
Sonora Lyre Snake (<u>Trimorphodon lambda</u>)			R	R					
Crotalidae									
Sidewinder (<u>Crotalus cerastes</u>)	C	C	A	A	A			P	R
Speckled Rattlesnake (<u>Crotalus mitchelli</u>)	C		C	R				P	P
Mohave Rattlesnake (<u>Crotalus scutulatus</u>)	U		U						
Gekkonidae									
Western Banded Gecko (<u>Coleonyx variegatus</u>)	U	R	R						
Iguanidae									
Desert Iguana (<u>Dipsosaurus dorsalis</u>)	C	U	C					R	

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Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Chuckwalla (<u>Sauromalus obseus</u>)	C		C	C				C	
Zebra-tailed Lizard (<u>Callisaurus draconoides</u>)	A	U	A	P	R				
Collared Lizard (<u>Crotaphytus collaris</u>)	U		C					P	P
Leopard Lizard (<u>Crotaphytus wislizeni</u>)	C	U	U					U	
Desert Spiny Lizard (<u>Sceloporus magister</u>)	C	R	R	R	C			P	
Long-tailed Brush Lizard (<u>Urosaurus graciosa</u>)	C	R	R	P					
Side-blotched Lizard (<u>Uta stansburiana</u>)	A	U	C	U	U			U	C
Desert Horned Lizard (<u>Phrynosoma platyrhinos</u>)	A	U	C	U	U				R
Xantusiidae									
Yucca Night Lizard (<u>Xantusia vigilis</u>)	C		R		C				C
Teiidae									
Western Whiptail (<u>Cnemidophorus tigris</u>)	A	C	C	C	R		R	R	
Helodermae									
Gila Monster (<u>Heloderma suspectum</u>)	R		U	U				R	
Testudinidae									
Desert Tortoise (<u>Gopherus agassizi</u>)	C	R	C						C
Trionchidae									
Spiny Softshell (<u>Trionyx ferox</u>)						H	R		

APPENDIX VI. Life history information for reptiles in the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II Study Area. (As a group Reptiles hibernate in the winter).

Species by Family	Seasonal Use	Segments of Habitat Most Dependent Upon	Primary Food Habits	Special Status	Remarks
Leptotyphlopidae					
Western Blind Snake (<u>Leptotyphlops humifilis</u>)	Spring, summer, fall	Rocks, root tangles	Terrestrial, invertebrates		
Colubridae					
Spotted Leaf-nosed Snake (<u>Phyllorhynchus decurtatus</u>)	Spring, summer, fall	Loose sand, rocks	Vertebrates, poikilotherms		
Coachwhip (<u>Masticophis flagellum</u>)	Spring, summer, fall	Rocks, downed vegetation, shrubs	Terrestrial, invertebrates vertebrates, poikilotherms		
Western Patch-nosed Snake (<u>Salvadora hexalepis</u>)	Spring, summer, fall	Loose sand, rocks, shrubs	Vertebrates, homeotherms, poikilotherms		
Glossy Snake (<u>Arizona elegans</u>)	Spring, summer, fall	Loose sand, rocks, shrubs	Vertebrates, homeotherms, poikilotherms		
Gopher Snake (<u>Pituophis catenifer</u>)	Spring, summer, fall	Shrubs	Vertebrates, homeotherms		
Common King Snake (<u>Lampropeltis getulus</u>)	Spring, summer, fall	Shrubs	Vertebrates, poikilotherms		
Long-nosed Snake (<u>Rhinocheilus lecontei</u>)	Spring, summer, fall	Rocks, shrubs	Terrestrial, invertebrates, vertebrates, homeotherms, poikilotherms		
Western Ground Snake (<u>Sonora semiannulata</u>)	Spring, summer, fall	Loose sand, rocks	Terrestrial, invertebrates		
Western Shovel-nosed Snake (<u>Chionactis occipitalis</u>)	Spring, summer, fall	Loose sand, shrubs	Terrestrial, invertebrates		
Sonora Lyre Snake (<u>Trimorphodon lambda</u>)	Spring, summer, fall	Rocks	Vertebrates, homeotherms, poikilotherms		
Crotalidae					
Sidewinder (<u>Crotalus cerastes</u>)	Spring, summer, fall	Loose sand, shrubs	Vertebrates, homeotherms, poikilotherms		
Speckled Rattlesnake (<u>Crotalus mitchelli</u>)	Spring, summer, fall	Rocks	Vertebrates, homeotherms, poikilotherms		
Mojave Rattlesnake (<u>Crotalus scutulatus</u>)	Spring, summer, fall	Rocks, shrubs	Vertebrates, homeotherms, poikilotherms		
Gekkonidae					
Western Banded Gecko (<u>Coleonux variegatus</u>)	Spring, summer, fall	Rocks, downed vegetation	Terrestrial, invertebrates		
Iguanidae					
Desert Iguana (<u>Dipsosaurus dorsalis</u>)	Spring, summer, fall	Loose sand, rocks shrubs	Terrestrial vegetation		

Species by Family	Seasonal Use	Segments of Habitat Most Dependent Upon	Primary Food Habits	Special Status	Remarks
Chuckwails (<u>Sauromalus obseus</u>)	Spring, summer, fall	Rocks	Terrestrial, vegetation		
Zebra-tailed Lizard (<u>Callisaurus draconoides</u>)	Spring, summer, fall	Loose sand, gravel	Terrestrial and volant invertebrates		
Collared Lizard (<u>Crotaphytus collaris</u>)	Spring, summer, fall	Rocks	Terrestrial, invertebrates		
Leopard Lizard (<u>Crotaphytus wislizeni</u>)	Spring, summer, fall	Loose sand, gravel	Vertebrates, poikilotherms		
Desert Spiny Lizard (<u>Sceloporus magister</u>)	Spring, summer, fall	Rocks, shrubs	Terrestrial, invertebrates		
Long-tailed Brush Lizard (<u>Urosaurus graciose</u>)	Spring, summer, fall	Shrubs	Terrestrial, invertebrates		
Side-blotched Lizard (<u>Uta stansburiana</u>)	Spring, summer, fall	Loose sand, rock	Arboreal, volant and terrestrial invertebrates		
Desert Horned Lizard (<u>Phrynosoma platyrhinos</u>)	Spring, summer, fall	Loose sand	Terrestrial invertebrates		
Xantusidae					
Yucca Night Lizard (<u>Xantusia vigilis</u>)	Spring, summer, fall	Downed vegetation	Volant and terrestrial invertebrates		
Teiidae					
Western Whiptail (<u>Cnemidophorus tigris</u>)	Spring, summer, fall	Loose sand, gravel, rocks	Volant and terrestrial invertebrates		
Helodermae					
Gila Monster (<u>Heloderma suspectum</u>)	Spring, summer, fall	Rocks	Vertebrates, homeotherms, poikilotherms	Classified as threatened by State Law	
Testudinidae					
Desert Tortoise (<u>Gopherus agassizii</u>)	Spring, summer, fall	Loose sand, gravel rocks	Terrestrial vegetation	Classified as threatened by State Law	
Trionchidae					
Spiny Softshell (<u>Trionyx ferox</u>)	Spring, summer, fall	Aquatic - littoral zone	Aquatic invertebrates, vertebrates - homeotherms		

APPENDIX VII.

Seasonal use, occurrence and abundance of birds, in the nine biotic communities of the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II Study Area. Values expressed are: PR = permanent resident, WR = winter resident, SR = summer resident, T = transients, ACC = accidental, A = abundant, C = common, U = uncommon, R = rare, P = probable occurrence and H = hypothetical occurrence. Data from: Austin and Bradley (1971) and Austin (unpublished data).

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Gaviidae						WR-R	WR-U		
Common Loon (<u>Gavia immer</u>)						WR-R	WR-U		
Red-throated Loon (<u>Gavia stellata</u>)						WR-R	WR-U	YB	ACC?
Podicipedidae									
Horned Grebe (<u>Podiceps auritus</u>)							WR-U	WR-R	
Earred Grebe (<u>Podiceps caspicus</u>)						P	WR-C		
Western Grebe (<u>Aechmophorus occidentalis</u>)						WR-U	WR-C		
Pied-billed Grebe (<u>Podilymbus podiceps</u>)						WR-C	WR-C		
Pelecanidae									
White Pelican (<u>Pelecanus erythrorhynchos</u>)						T-R	T-R		
Brown Pelican (<u>Pelecanus occidentalis</u>)								ACC	
Sulidae									
Blue-footed Booby (<u>Sula nebouxi</u>)						ACC	ACC		
Phalacrocoracidae									
Double-crested Cormorant (<u>Phalacrocorax auritus</u>)						WR-C	WR-C		
Ardeidae									
Great Blue Heron (<u>Ardea herodias</u>)						PR-C	PR-C		
Green Heron (<u>Butorides virescens</u>)						SR-U	SR-U		
Little Blue Heron (<u>Florida caerules</u>)						ACC	ACC		
Common Egret (<u>Casmerodius albus</u>)						T-U	T-U		ACC
Snowy Egret (<u>Leucophaea thula</u>)						T-C	T-C		

breeding

breeding

Cattle Egret

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Black-crowned Night Heron (<u>Nycticorax nycticorax</u>)						PR-C	PR-C		
American Bittern (<u>Scolopax lentiginosus</u>)						T-U	T-U		
Threskiornithidae									
White-faced Ibis (<u>Plegadis chini</u>)						T-U	T-U		
Anatidae									
Whistling Swan (<u>Clor columbianus</u>)						WR-U	WR-U		
Canada Goose (<u>Branta canadensis</u>)						WR-U	WR-C		
Snow Goose (<u>Chen hyperborea</u>)						WR-U	WR-U		
Mallard (<u>Anas platyrhynchos</u>)						WR-C	WR-C		
Gadwall (<u>Anas strepera</u>)						WR-U	WR-C		
Pintail (<u>Anas acuta</u>)						WR-U	WR-C		
Green-winged Teal (<u>Anas carolinensis</u>)						WR-C	WR-A		
Blue-winged Teal (<u>Anas discors</u>)						T-U	T-U		
Cinnamon Teal (<u>Anas cyanoptera</u>)						PR-C	PR-C		
American Widgeon (<u>Mareca americana</u>)						WR-C	WR-C		
Shoveler (<u>Spatula clypeata</u>)						WR-C	WR-C		
Wood Duck (<u>Aix sponsa</u>)						WR-C	WR-U		
Redhead (<u>Aythya americana</u>)						WR-U	WR-C		
Ring-necked Duck (<u>Aythya collaris</u>)						WR-U	WR-U		
Canvasback (<u>Aythya valisineria</u>)						WR-U	WR-C		
Greater Scaup (<u>Aythya marila</u>)						WR-U	WR-U		

Breeding
Breeding
now after have been
breeding

present year

PR

PR
SR-C

R
R

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Lesser Scaup (<u>Aythya affinis</u>)							WR-C	WR-C	
Common Goldeneye (<u>Bucephala clangula</u>)							WR-U	WR-U	
Sufflehead (<u>Bucephala albeola</u>)							WR-C	WR-C	
White-winged scoter (<u>Melanitta deglandi</u>)								ACC	
Ruddy Duck (<u>Oxyura jamaicensis</u>)							PR-A	PR-A	
Hooded Merganser (<u>Lophodytes cucullatus</u>)							T-U ^R	T-U ^R	
Common Merganser (<u>Mergus merganser</u>)							WR-U	WR-C	
Red-breasted Merganser (<u>Mergus serrator</u>)							WR-U	WR-C	
Carthartidae									
Turkey Vulture (<u>Cathartes aura</u>)							PR-C	PR-C	PR-U
Accipitridae									
Goshawk (<u>Accipiter gentilis</u>)							T-U ^P	T-U ^R	
Sharp-shinned Hawk (<u>Accipiter striatus</u>)							T-C	T-C	T-U
Cooper's Hawk (<u>Accipiter cooperii</u>)							T-C	T-C	T-U
Red-tailed Hawk (<u>Buteo jamaicensis</u>)							PR-C	PR-C	P, P
Swanson's Hawk (<u>Buteo swainsoni</u>)							T-U ^C		T-C
Rough-legged Hawk (<u>Buteo lagopus</u>)							WR-U	WR-U	WR-U
Ferruginous Hawk (<u>Buteo regalis</u>)							WR-U ^R	WR-U ^R	WR-U ^R
Golden Eagle (<u>Aquila chrysaetos</u>)							WR-U	WR-U	P, P
Marsh Hawk (<u>Circus cyaneus</u>)							PR-U	PR-U	PR-C
Panionidae									
Osprey (<u>Pandion haliaetus</u>)							T-U	T-U	

is in fact PR-U
they breed (see App. VIII)

100025

Golden Eagle

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Falconidae									
Prairie Falcon (<u>Falco mexicanus</u>)	WR-U	WR-U	PR-U	P					
Peregrine Falcon (<u>Falco peregrinus</u>)	T-R			T-R	T-R		T-R		
Sparrow Hawk (<u>Falco sparverius</u>)	PR-C	PR-C	PR-C	PR-C	PR-C	PR-U			PR-U
Phasianidae									
Gambel's Quail (<u>Lophortyx gambelii</u>)	PR-C	PR-C	PR-A	PR-C	PR-C				
Rallidae									
Virginia Rail (<u>Rallus limicola</u>)						PR-C			
Sora (<u>Porzana carolina</u>)						PR-C			
Common Gallinule (<u>Gallinula chloropus</u>)						PR-C			
American Coot (<u>Fulica americana</u>)						PR-A	PR-B/A		
Charadriidae									
Semi-palmated Plover (<u>Charadrius semipalmatus</u>)					T-C	T-C			
Snowy Plover (<u>Charadrius alexandrinus</u>)					T-C	T-C			
Killdeer (<u>Charadrius vociferus</u>)					PR-C	PR-C			PR-C
Mountain Plover (<u>Eupoda montana</u>)					T-R	T-R	ACC R		
American Golden Plover (<u>Pluvialis dominica</u>)					T-R	T-R	P		
Black-bellied Plover (<u>Squatarola squatarola</u>)					T-R	T-R	P		
Scolopacidae									
Common Snipe (<u>Capalla gallinago</u>)						WR-C	WR-C		
Long-billed Curlew (<u>Numenius americanus</u>)						T-U			
Whimbrel (<u>Numenius phaeopus</u>)						T-U/R			

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
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Upland Plover
(Bartramia longicauda)

T-U^R

Spotted Sandpiper
(Actitis macularia)

SR-C

Solitary Sandpiper
(Tringa solitaria)

T-C

Willet
(Catoptrophorus semipalmatus)

T-U

Greater Yellowlegs
(Totanus melanoleucus)

WR-C

P

Lesser Yellowlegs
(Totanus flavipes)

T-C

P

Knot
(Calidris canutus)

T-U

P

Pectoral Sandpiper
(Erolia melanotos)

T-U

P

Baird's Sandpiper
(Erolia bairdii)

T-U

T-C

P

Least Sandpiper
(Erolia minutilla)

WR-C

WR-C

P

Dunlin
(Erolia alpina)

T-U

T-U

P

Short-billed Dowitcher
(Limnodromus griseus)

T-R

T-R

P

Long-billed Dowitcher
(Limnodromus scolopaceus)

T-C

T-C

P

Stilt Sandpiper
(Micropelana himantopus)

T-U

T-U

P

Semi-palmated Sandpiper
(Ereunetes pusillus)

T-U

T-U

P

Western Sandpiper
(Ereunetes mauri)

T-C

T-C

P

Marbled Godwit
(Limosa fedoa)

T-C

T-U

Recurvirostridae

American Avocet
(Recurvirostra americana)

T-C

T-C

Black-necked Stilt
(Himantopus mexicanus)

T-C

T-C

Phalaropodidae

Red Phalarope
(Phalaropus fulicarius)

ASC

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
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Strigidae

Great-horned Owl
(Bubo virginianus)

WR-U WR-U PR-C PR-C PR-C

Burrowing Owl
(Speotyto cunicularia)

PR-C PR-C PR-C P PR-U PR-U

Short-eared Owl
(Asio flammeus)

T-U T-U P

Caprimulgidae

Common Nighthawk
(Chordeiles minor)

SR T-U SR T-U SR T-C SR T-C SR T-C

Lesser Nighthawk
(Chordeiles acutipennis)

SR-C SR-C SR-C P SR-C

Apodidae

Vaux's Swift
(Chaetura vauxi)

T-U T-U T-U T-U T-U T-U

White-throated Swift
(Aeronautes sexatalis)

SR-C SR-C PR-C SR-C SR-C SR-C

Trochilidae

Black-chinned Hummingbird
(Archilochus alexandri)

SR-C

Costa's Hummingbird
(Calypte costae)

SR-C SR-C SR-C SR-C

Broad-tailed Hummingbird
(Selasphorus platycercus)

T-C T-C SR-C P P SR-C

Rufous Hummingbird
(Selasphorus rufus)

T-C

Alcedinidae

Belted Kingfisher
(Megasceryle alcyon)

T-C T-C PR-C

Picidae

Red-shafted Flicker
(Colaptes cafer)

WR-C WR-C WR-C P WR-C WR-C

Lewis Woodpecker
(Asyndesmus lewis)

T-U

Yellow-bellied Sapsucker
(Sphyrapicus varius)

WR-C WR-U WR-C WR-C

Ladder-backed Woodpecker
(Dendrocoptes scalaris)

PR-C PR-U WR-C WR-U WR-C

Tyrannidae

Eastern Kingbird
(Tyrannus tyrannus)

ACC

ACC

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Western Kingbird (<u>Tyrannus verticalis</u>)	SR-C	SR-C	SR-C	P	SR-C				SR-C
Cassin's Kingbird (<u>Tyrannus vociferans</u>)	T-U		T-U	P	P				
Scissor-tailed Flycatcher (<u>Muscivora forficata</u>)		ACC	ACC						
Ash-throated Flycatcher (<u>Myiarchus cinerascens</u>)	SR-C	SR-C	SR-C						
Black Phoebe (<u>Sayornis nigricans</u>)	WR-U	WR-U	WR-C	P	WR-C				
Say's Phoebe (<u>Sayornis saya</u>)	PR-C	PR-C	PR-C	PR-C	PR-C				
<i>water</i> Traill's Flycatcher (<u>Empidonax traillii</u>)	T-C	T-C	SR-C	<i>Brooding</i>					
Dusky Flycatcher (<u>Empidonax oberholseri</u>)	T-C	T-C	T-C	P	P				T-C
Gray Flycatcher (<u>Empidonax wrightii</u>)	T-C	T-C	T-C	P	P				T-C
Western Flycatcher (<u>Empidonax difficilis</u>)	T-C	T-C	T-C	T-C	T-C				T-C
Western Wood Peewee (<u>Contopus sordidulus</u>)	T-C	T-C	T-C	T-C	T-C	P			T-C
Olive-sided Flycatcher (<u>Mniotilta borealis</u>)	T-C	T-C	T-C	T-C	T-C	T-C			T-C
Vermilion Flycatcher (<u>Pyrocephalus rubinus</u>)	WR-U	WR-U	PR-U	P	P				
Alaudidae									
Horned Lark (<u>Eremophila alpestris</u>)	PR-A	PR-A	PR-C						PR-C
Hirundinidae									
Violet-green Swallow (<u>Tachycineta thalassina</u>)	T-C	T-C	T-C	T-C	T-C	T-A	T-C		
Tree Swallow (<u>Iridoprocne bicolor</u>)	T-C	T-C	T-C	T-C	T-C	T-C			
<i>Brooding</i> Bank Swallow (<u>Riparia riparia</u>)	T-C	T-C	T-C	SR-C	T-C	T-A	T-A		
Rough-winged Swallow (<u>Stelgidopteryx ruficollis</u>)	T-C	T-C	T-C	T-C	T-C	T-A	T-C		
Barn Swallow (<u>Hirundo rustica</u>)	T-C	T-C	T-C	T-C	T-C	T-C	T-C		
<i>Brooding</i> Cliff Swallow (<u>Petrochelidon pyrrhonota</u>)	T-C	T-C	T-C	T-A	T-C	T-C	T-C		

at least 1-2 specimens seen since then

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Purple Martin (<u>Progne subis</u>)			T-U						
Corvidae									
Scrub Jay (<u>Aphelocoma coerulescens</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				WR-C
Common Raven (<u>Corvus corax</u>)	WR-C	WR-C	PR-C	PR-C	PR-C			WR-C	
Common Crow (<u>Corvus brachyrhynchos</u>)	WR-U	WR-U	WR-U						
Pinon Jay (<u>Gymnorhinus cyanocephala</u>)	WR-C	WR-C	T-C	T-C	T-C				acc. in Wash area, on the edge of the station
Paridae									
Verdin (<u>Auriparus flaviceps</u>)	PR-C	PR-C	PR-A	PR-A	PR-C				
Common Bushtit (<u>Psaltriparus minimum</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				WR-C
Sittidae									
White-breasted Nuthatch (<u>Sitta carolinensis</u>)			T-C	T-C	T-C				T-C
Red-breasted Nuthatch (<u>Sitta canadensis</u>)			T-C	T-C	T-C				T-C
Certhiidae									
Brown Creeper (<u>Certhia familiaris</u>)			T-C	T-C	T-C				
Troglodytidae									
House Wren (<u>Troglodytes aedon</u>)	T-C	T-C	WR-C	WR-C	WR-C				
Winter Wren (<u>Troglodytes troglodytes</u>)			WR-U	WR-U	WR-U				PR - Pinon 1971 shows only 2 records neither in Wash area
Bewick's Wren (<u>Thryomanes bewickii</u>)	PR-C	PR-C	PR-C	P	P				
Cactus Wren (<u>Campylorhynchus brunneicapillum</u>)	PR-C	PR-C	PR-A						
Long-billed Marsh Wren (<u>Telematodytes palustris</u>)							PR-A		
Rock Wren (<u>Salpinctes obsoletus</u>)	PR-C	PR-C	PR-C	PR-A					
Mimidae									
Mockingbird (<u>Mimus polyglottos</u>)	PR-C	PR-C	PR-C	PR-C	PR-C				PR-A

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Leconte's Thrasher (<u>Toxostoma lecontei</u>)	WR-C	WR-C	PR-C	PR-U	P				
Crissal Thrasher (<u>Toxostoma dorsale</u>)	PR-U		PR-C	PR-C					WR-C
Sage Thrasher (<u>Oreoscoptes montanus</u>)	WR-C	WR-C	T-C	T-C	T-C				
Turdidae									
Robin (<u>Turdus migratorius</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				WR-C
Hermit Thrush (<u>Hylocichia guttata</u>)			T-C	T-C					
Swainson's Thrush (<u>Hylocichia ustulata</u>)			T-U						WR-C
Western Bluebird (<u>Sialia mexicana</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				
Mountain Bluebird (<u>Sialia currucoides</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				WR-C
Townsend's Solitaire (<u>Myadestes townsendi</u>)			WR-C	WR-C					
Sylviidae									
Blue-gray Gnatcatcher (<u>Polioptila caerulea</u>)	PR-C	PR-C	PR-C	P	P				P
Black-tailed Gnatcatcher (<u>Polioptila melanura</u>)			PR-C	PR-C					
Golden-crowned Kinglet (<u>Regulus satrapa</u>)			T-U ^R	T-U ^R	T-U ^R				WR-C ^R
Ruby-crowned Kinglet (<u>Regulus calendula</u>)	WR-C	WR-C	WR-C	WR-C	WR-A				
Motacillidae									
Water Pipit (<u>Anthus spinoletta</u>)					WR-A	WR-A			WR-C
Bombycillidae									
Bohemian Waxwing (<u>Bombycilla garrula</u>)			WR-C		WR-C				WR-C
Cedar Waxwing (<u>Bombycilla cedrorum</u>)			WR-C		WR-C				WR-C
Ptilonotidae									
Phainopepla (<u>Phainopepla nitens</u>)	PR-C	PR-C	PR-A	P	P				
Laniidae									
Northern Shrike (<u>Lanius excubitor</u>)			T-U	T-U	T-U				

Austin, 1911 shows seven records, 1935 in present with only 1967 showing any numbers. Should be rec.

Austin 1911 - 4 records (one in wash) subsequently very rare here. more but should be only rec.

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Leconte's Thrasher (<u>Toxostoma lecontei</u>)	WR-C	WR-C	PR-C	PR-U	P				
Crissal Thrasher (<u>Toxostoma dorsale</u>)	PR-U		PR-C	PR-C					
Sage Thrasher (<u>Dreoscoptes montanus</u>)	WR-C	WR-C	T-C	T-C	T-C				
Turdidae									
Robin (<u>Turdus migratorius</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				WR-C
Hermit Thrush (<u>Hylocichla guttata</u>)			T-C	T-C					
Swainson's Thrush (<u>Hylocichla ustulata</u>)			T-U						WR-C
Western Bluebird (<u>Sialia mexicana</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				
Mountain Bluebird (<u>Sialia currucoides</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				WR-C
Townsend's Solitaire (<u>Myadestes townsendi</u>)			WR-C	WR-C					
Sylviidae									
Blue-gray Gnatcatcher (<u>Poliottila caerulea</u>)	PR-C	PR-C	PR-C	P	P				P
Black-tailed Gnatcatcher (<u>Poliottila melanura</u>)			PR-C	PR-C					
Golden-crowned Kinglet (<u>Regulus satrapa</u>)			T-U	T-U	T-U				WR-C
Ruby-crowned Kinglet (<u>Regulus calendula</u>)	WR-C	WR-C	WR-C	WR-C	WR-A				
Motacillidae									
Water Pipet (<u>Anthus spinoletta</u>)							WR-A	WR-A	WR-C
Bombycillidae									
Bohemian Waxwing (<u>Bombycilla garrula</u>)			WR-C		WR-C				WR-C
Cedar Waxwing (<u>Bombycilla cedrorum</u>)			WR-C		WR-C				WR-C
Ptilonotidae									
Phainopepla (<u>Phainopepla nitens</u>)	PR-C	PR-C	PR-A	P	P				
Laniidae									
Northern Shrike (<u>Lanius excubitor</u>)			T-U	T-U	T-U				

Duplicate

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Loggerhead Shrike (<u>Lanius ludovicianus</u>)	PR-C	PR-C	PR-C	PR-C	PR-C	PR-C			
Sturnidae									
Starling (<u>Sturnus vulgaris</u>)			PR-C	PR-C	PR-A	PR-C			PR-C
Vireonidae									
Hutton's Vireo (<u>Vireo huttoni</u>)			T-C	T-C	T-C				
Bell's Vireo (<u>Virco bellii</u>)			SR-C	SR-C	P				
Solitary Vireo (<u>Vireo solitarius</u>)	T-C	T-C	T-C	T-C	T-C				T-C
Red-eyed Vireo (<u>Vireo olivaceus</u>)			T-U ^R		T-U ^R				T-U ^R
Warbling Vireo (<u>Vireo gilvus</u>)			T-C	T-C	T-C				T-C
Parulidae									
Orange-crowned Warbler (<u>Vermivora celata</u>)	T-C	T-C	T-C	T-C	T-C	T-C			T-C
Nashville Warbler (<u>Vermivora ruficapilla</u>)			T-C	T-C	P				P
Virginia Warbler (<u>Vermivora virginiae</u>)			T-C	T-C	T-C				P
Lucy's Warbler (<u>Vermivora luciae</u>)	SR-C	SR-C	SR-A	P	P				
Yellow Warbler (<u>Dendroica petechia</u>)	T-C	T-C	SR-C	P	P				T-C
Myrtle's Warbler (<u>Dendroica coronata</u>)	T-C	T-C	T-C	T-C	T-C				T-C
Audobon's Warbler (<u>Dendroica auduboni</u>)	WR-A	WR-A	WR-A	WR-C	WR-A				WR-A
Black-throated Gray Warbler (<u>Dendroica nigrescens</u>)			T-C	T-C	P				
Townsend's Warbler (<u>Dendroica townsendi</u>)	T-C	T-C	T-C	T-C	T-C				T-C
MacGillivray's Warbler (<u>Oporornis tolmiei</u>)			T-C	T-C					T-C
Yellowthroat (<u>Geothlypis trichas</u>)					SR-C	SR-A			
Yellow-breasted Chat (<u>Icteria virens</u>)					SR-C	SR-C			
Wilson's Warbler (<u>Troglodytes aedon</u>)									

10000-10000
warbler

see specimen
Magnolia
1-1/2 in. taken
in 1974?

see Appendix - should be
shown to breeding

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
American Redstart (<u>Setophaga ruticilla</u>)			T-U						
Ploceidae									
House Sparrow (<u>Passer domesticus</u>)			PR-C	PR-C					PR-A
Icteridae									
Bobolink (<u>Dolichonyx oryzivorus</u>)							ACC		
Western Meadowlark (<u>Sturnella neglecta</u>)	T-C	T-C	PR-C	PR-C	PR-C				
Yellow-headed Blackbird (<u>Xanthocephalus xanthocephalus</u>)					SR-C		SR-A		
Red-winged Blackbird (<u>Aegialius phoeniceus</u>)			PR-C		PR-C		PR-A		PR-C
Hooded Oriole (<u>Icterus cucullatus</u>)			SR-U						
Scott's Oriole (<u>Icterus parisorum</u>)			SR-C ^U	SR-C ^U					SR-C ^U ?
Northwest → Bullock's Oriole (<u>Icterus bullockii</u>)			SR-C	SR-C					SR-C
Brewer's Blackbird (<u>Euphagus cyanocephalus</u>)			WR-C	WR-U	WR-C				WR-A
Great ← Boat-tailed Grackle (<u>Cassidix mexicanus</u>)							S PR-U		
Brown-headed Cowbird (<u>Molothrus ater</u>)	PR-C	PR-C	PR-C	P	PR-C		PR-C		PR-C
Thraupidae									
Western Tanager (<u>Piranga ludoviciana</u>)			T-A	T-A	T-A				T-C
Summer Tanager (<u>Piranga rubra</u>)			T-U	T-U					
Fringillidae									
Black-headed Grosbeak (<u>Pheucticus melanocephalus</u>)			T-C	T-C	T-C				T-U
Blue Grosbeak (<u>Guiraca caerulea</u>)			SR-C	SR-C					
Lazuli Bunting (<u>Passerina amoena</u>)			T-C	T-C	T-C				T-C
Indigo Bunting (<u>Passerina cyanea</u>)			T-U	T-U					
House Finch									

WR-C - Along Las Vegas Bay edges

see App. VIII - show in breeding

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Pine Siskin (<u>Spinus pinus</u>)	WR-U	WR-U	WR-C	WR-C	WR-C				
American Goldfinch (<u>Spinus tristis</u>)			WR-C	P	P				
Lesser Goldfinch (<u>Spinus psaltria</u>)			PR-C	PR-C	PR-C				PR-C
Green-tailed Towhee (<u>Chlorura chlorura</u>)	T-C	T-C	T-A	P	T-C				
Rufous-sided Towhee (<u>Pipilo erythrophthalmus</u>)	WR-C	WR-C	WR-C	WR-C	WR-C				WR-C
Albert's Towhee (<u>Pipilo aberti</u>)	PR-C	PR-C	PR-A	PR-C	PR-A				
Savannah Sparrow (<u>Passerculus sandwichensis</u>)	T-C	T-C	WR-C	WR-U	WR-C				PR-C
Vesper Sparrow (<u>Poocetes gramineus</u>)	T-C	T-C	T-C	P	P				P
Lark Sparrow (<u>Chondestes grammacus</u>)	T-C	T-C	T-C	T-C	T-C				T-C
Black-throated Sparrow (<u>Amphispiza bilineata</u>)	S/WR-C	S/WR-C	S/WR-C	P	P				
Sage Sparrow (<u>Amphispiza belli</u>)	WR-C	WR-C	WR-C						
Slate-colored Junco (<u>Junco hyemalis</u>)			WR-C	P	P				WR-C
Oregon Junco (<u>Junco oreganus</u>)			WR-C	P	P				WR-C
Gray-headed Junco (<u>Junco caniceps</u>)			WR-C	P	P				WR-C
Tree Sparrow (<u>Spizella arborea</u>)			T-C	T-C	T-C				T-C
Chipping Sparrow (<u>Spizella passerina</u>)	T-C	T-C	WR-C	WR-C	WR-C				WR-C
Brewer's Sparrow (<u>Spizella breweri</u>)	T-C	T-C	WR-C	WR-C	WR-C				WR-C
Harris Sparrow (<u>Zonotrichia querula</u>)	T-U	T-U	T-U						
White-crowned Sparrow (<u>Zonotrichia leucophrys</u>)	WR-C	WR-C	WR-A	WR-C	WR-A				WR-C
Golden-crowned Sparrow (<u>Zonotrichia atricapilla</u>)	T-U	T-U	T-U						T-U
White-throated Sparrow (<u>Zonotrichia albicollis</u>)			WR-U	WR-U	WR-U				

coastal prairie
at night - B. sparrow
at night - B. sparrow
at night - B. sparrow

3-colored Junco

limited show
breeding

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Tran- sitional Riparian	Marsh	Open Water	Barren	Urban
Fox Sparrow (<u>Passerella iliaca</u>)	T-U	T-U	T-U						
Lincoln's Sparrow (<u>Melospiza lincolni</u>)	T-C	T-C	WR - U						
Swamp Sparrow (<u>Melospiza georgiana</u>)							T-R		
Song Sparrow (<u>Melospiza melodia</u>)					PR-C	PR-C ^A			
Lapland Longspur (<u>Calcarius lapponicus</u>)	T-U	T-U							

APPENDIX VIII.

General life history data for birds in the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II Study Area. Data taken from: Bent (1953); Austin and Bradley (1971).
NA = not applicable.

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Gaviidae				
Common Loon (<u>Gavia immer</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Red-throated Loon (<u>Gavia stellata</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Podicipedidae				
Horned Grebe (<u>Podiceps auritus</u>)	Feeding, watering, resting	Vertebrates, poikilotherms, invertebrates, aquatic	NA	
Eared Grebe (<u>Podiceps caspicus</u>)	Feeding, watering, resting	Vertebrates, poikilotherms, invertebrates, aquatic	NA	
Western Grebe (<u>Aechmophorus occidentalis</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Pied-billed Grebe (<u>Podilymbus podiceps</u>)	Breeding	Vertebrates, poikilotherms	Ground-marsh	
Pelecanidae				
White Pelican (<u>Pelecanus erythrorhynchos</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	Protected by State Law
Brown Pelican (<u>Pelecanus occidentalis</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	Protected by State Law
Sulidae				
Blue-footed Booby (<u>Sula nebouxi</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	Very unusual occurrence
Phalacrocoracidae				
Double-crested Cormorant (<u>Phalacrocorax auritus</u>)	Breeding	Vertebrates, poikilotherms	Tree	
Ardeidae				
Great Blue Heron (<u>Ardea herodias</u>)	Breeding	Vertebrates, poikilotherms	Tree	
Green Heron (<u>Butorides virescens</u>)	Breeding	Vertebrates, poikilotherms	Tree	
Little Blue Heron (<u>Florida caerulea</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Common Egret (<u>Casmerodius albus</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Snowy Egret (<u>Leucophox thula</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Black-crowned Night Heron (<u>Nycticorax nycticorax</u>)	Breeding	Vertebrates, poikilotherms	Tree	
American Bittern (<u>Scolaus lentiginosus</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Threskiornithidae				
White-faced Ibis (<u>Plegadis chihi</u>)	Feeding, watering, resting	Invertebrate aquatic	NA	Protected by State Law
Anatidae				
Whistling Swan (<u>Olor columbianus</u>)	Feeding, watering, resting	Vegetation, aquatic, terrestrial	NA	All members of the Anatidae are protected by State Game Laws
Canada Goose (<u>Branta canadensis</u>)	Breeding	Vegetation, aquatic terrestrial	Ground- marsh	
Snow Goose (<u>Chen hyperborea</u>)	Breeding	Vegetation, aquatic, terrestrial	Ground- Marsh	
Mallard (<u>Anas platyrhynchos</u>)	Feeding, watering, resting	Vegetation, aquatic, terrestrial	NA	
Cadwall (<u>Anas strepera</u>)	Feeding, watering, resting	Vegetation, aquatic terrestrial	NA	
Pintail (<u>Anas acuta</u>)	Feeding, watering, resting	Vegetation, aquatic terrestrial	NA	
Green-winged Teal (<u>Anas carolinensis</u>)	Feeding, watering, resting	Vegetation, aquatic terrestrial	NA	
Blue-winged Teal (<u>Anas discors</u>)	Feeding, watering, resting	Vegetation, aquatic, terrestrial	NA	
Cinnamon Teal (<u>Anas cyanoptera</u>)	Breeding	Vegetation, aquatic, terrestrial	Ground- marsh	
American Widgeon (<u>Mareca americana</u>)	Feeding, watering, resting	Vegetation, aquatic	NA	
Shoveler (<u>Spatula clypeata</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
Wood Duck (<u>Aix sponsa</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
Redhead (<u>Aythya americana</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
Ring-necked Duck (<u>Aythya collaris</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
Canvasback (<u>Aythya valisineria</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
Greater Scaup (<u>Aythya marila</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
Lesser Scaup (<u>Aythya affinis</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Common Goldeneye (<u>Bucephala clangula</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
Bufflehead (<u>Bucephala albeola</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
White-winged scoter (<u>Melanitta declandi</u>)	Feeding, watering, resting	Aquatic invertebrates	NA	
Ruddy Duck (<u>Oxyura jamaicensis</u>)	Breeding	Aquatic invertebrates	Ground-marsh	
Hooded Merganser (<u>Lochodytes cucullatus</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Common Merganser (<u>Mergus merganser</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Red-breasted Merganser (<u>Mergus serrator</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Cathartidae				
Turkey Vulture (<u>Cathartes aura</u>)	Feeding, watering, resting	Carrion	NA	Protected by State and Federal Law
Accipitridae				
Goshawk (<u>Accipiter gentilis</u>)	Feeding, watering, resting	Homeotherm	NA	All members of the family Accipitridae are protected by State and Federal Law
Sharp-shinned Hawk (<u>Accipiter striatus</u>)	Feeding, watering, resting	Homeotherm	NA	
Cooper's Hawk (<u>Accipiter cooperii</u>)	Feeding, watering, resting	Homeotherm	NA	
Red-tailed Hawk (<u>Buteo jamaicensis</u>)	Breeding	Homeotherm	Tree	
Swanson's Hawk (<u>Buteo swainsoni</u>)	Feeding, watering, resting	Homeotherm		
Rough-legged Hawk (<u>Buteo lagopus</u>)	Feeding, watering, resting	Vertebrates, homeotherm	NA	
Ferruginous Hawk (<u>Buteo regalis</u>)	Feeding, watering, resting	Vertebrates, homeotherm	NA	
Golden Eagle (<u>Aquila chrysaetos</u>)	Feeding, watering, resting	Vertebrates, homeotherms	NA	
Marsh Hawk (<u>Circus cyaneus</u>)	Breeding	Vertebrates, homeotherms	Ground	
Panionidae				
Osprey (<u>Pandion haliaetus</u>)	Feeding, watering, resting	Vertebrates, homeotherms	NA	Protected by State and Federal Law

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Falconidae				
Prairie Falcon (<u>Falco mexicanus</u>)	Feeding, watering, resting	Vertebrates, homeotherms	NA	Protected by State and Federal Law
Peregrine Falcon (<u>Falco peregrinus</u>)	Feeding, watering, resting	Vertebrates, homeotherms	Cavity	Listed on the State and Federal threatened and endangered list Protected by State and Federal Law
Sparrow Hawk (<u>Falco sparverius</u>)	Feeding, watering, resting	Terrestrial invertebrates	NA	Protected by State and Federal Law
Phasianidae				
Gambell's Quail (<u>Lophortyx gambellii</u>)	Breeding	Vegetation - seeds	Ground	Protected by State Game law
Rallidae				
Virginia Rail (<u>Rallus limicola</u>)	Breeding	Invertebrates, aquatic	Marsh	
Sora (<u>Porzana carolina</u>)	Breeding	Invertebrates, aquatic	Marsh	
Common Gallinule (<u>Gallinula chloropus</u>)	Breeding	Invertebrates, aquatic	Marsh	
American Coot (<u>Fulica americana</u>)	Breeding	Invertebrates, aquatic	Marsh	Protected by State Game Laws
Charadriidae				
Semi-palmated Plover (<u>Charadrius semipalmatus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Snowy Plover (<u>Charadrius alexandrinus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Killdeer (<u>Charadrius vociferus</u>)	Breeding	Invertebrates, aquatic	Ground	
Mountain Plover (<u>Eupoda montana</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
American Golden Plover (<u>Pluvialis dominica</u>)	Feeding, watering resting	Invertebrates, aquatic	NA	
Black-bell'ed Plover (<u>Squatarola squatarola</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Scolopacidae				
Common Snipe (<u>Capallia gallinago</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	Protected by State Game Laws
Long-billed Curlew (<u>Numenius americanus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Whimbrel (<u>Numenius phaeopus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Upland Plover (<u>Bartramia longicauda</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Spotted Sandpiper (<u>Actitis macularia</u>)	Breeding	Invertebrates, aquatic	Ground	
Solitary Sandpiper (<u>Tringa solitaria</u>)	Breeding	Invertebrates, aquatic	Ground	
Willet (<u>Catoptrophorus semipalmatus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Greater Yellowlegs (<u>Totanus melanoleucus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Lesser Yellowlegs (<u>Totanus flavipes</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Knot (<u>Cailliax canutus</u>)	Feeding, watering resting	Invertebrates, aquatic	NA	
Pectoral Sandpiper (<u>Erolia melanotos</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Baird's Sandpiper (<u>Erolia bairdii</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Least Sandpiper (<u>Erolia minutilla</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Dunlin (<u>Erolia alpina</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Short-billed Dowitcher (<u>Limnodromus griseus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Long-billed Dowitcher (<u>Limnodromus scolopaceus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Stilt Sandpiper (<u>Micropelara himantopus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Semi-palmated Sandpiper (<u>Ereunetes pusillus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Western Sandpiper (<u>Ereunetes mauri</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Marbled Godwit (<u>Limosa fedoa</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Recurvirostridae				
American Avocet (<u>Recurvirostra americana</u>)	Breeding	Invertebrates, aquatic	Ground	
Black-necked Stilt (<u>Himantopus mexicanus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Phalaropodidae				
Red Phalarope (<u>Phalaropus fulicarius</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	

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Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Wilson's Phalarope (<u>Steganopus tricolor</u>)	Feeding, watering resting	Invertebrates, aquatic	NA	
Northern Phalarope (<u>Lobipes lobatus</u>)	Feeding, watering, resting	Invertebrates, aquatic		
Laridae				
Glaucous-winged Gull (<u>Larus glaucescens</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Herring Gull (<u>Larus argentatus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
California Gull (<u>Larus californicus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Ring-billed Gull (<u>Larus delawarensis</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Mew Gull (<u>Larus canus</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Franklin's Gull (<u>Larus pipixcan</u>)	Feeding, watering, resting	Invertebrates, aquatic	NA	
Bonapartes Gull (<u>Larus philadelphia</u>)	Feeding, watering, resting	Invertebrates; aquatic	NA	
Forester's Tern (<u>Sterna forsteri</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Common Tern (<u>Sterna hirundo</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Least Tern (<u>Sterna sibirica</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Caspian Tern (<u>Hydroprogne caspia</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Black Tern (<u>Gaidonias niger</u>)	Feeding, watering, resting	Vertebrates, poikilotherms	NA	
Columbidae				
White-winged Dove (<u>Zenaidura asiatica</u>)	Breeding	Vegetation, seeds	Tree	Protected by State Game Laws
Mourning Dove (<u>Zenaidura macroura</u>)	Breeding	Vegetation, seeds	Tree	Protected by State Game Laws
Ground Dove (<u>Columbigallina passerina</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Cuculidae				
Roadrunner (<u>Geococcyx californianus</u>)	Breeding	Invertebrates, terrestrial	Tree	Protected by State Law
Tytonidae				
Barn Owl (<u>Tyto</u>)	Feeding, watering,	Vertebrates, homeotherms	NA	Protected by State Law

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Strigidae				
Great-horned Owl (<u>Subo virginianus</u>)	Breeding	Vertebrates, homeotherms	Tree	All members of the family Strigidae are protected by State Law
Burrowing Owl (<u>Spectyto cunicularia</u>)	Breeding	Invertebrates, terrestrial	Ground, Rodent hole	
Short-eared Owl (<u>Asio flammeus</u>)	Feeding, watering, resting	Vertebrates, homeotherms	NA	
Caprimulgidae				
Common Nighthawk (<u>Chordeiles minor</u>)	Breeding	Invertebrates - volant	Ground	Protected by State Law
Lesser Nighthawk (<u>Chordeiles acutipennis</u>)	Breeding	Invertebrates - volant	Ground	Protected by State Law
Apodidae				
Vaux's Swift (<u>Chaetura vauxi</u>)	Feeding, watering, resting	Invertebrates - volant	NA	
White-throated Swift (<u>Aeronautes sexatalis</u>)	Breeding	Invertebrates - volant	Cliff	
Trochilidae				
Black-chinned Hummingbird (<u>Archilochus alexandri</u>)	Breeding	Necture	Tree	
Costa's Hummingbird (<u>Calypte costae</u>)	Breeding	Necture	Tree	
Broad-tailed Hummingbird (<u>Selasphorus platycercus</u>)	Breeding	Necture	Tree	
Rufous Hummingbird (<u>Selasphorus rufus</u>)	Feeding, watering, resting	Necture	NA	
Alcedinidae				
Belted Kingfisher (<u>Megasceryle alcyon</u>)	Breeding	Vertebrate, poikilotherm	Tree	Protected by State Law
Picidae				
Red-shafted Flicker (<u>Colaptes cafer</u>)	Feeding, watering, resting	Invertebrate, arboreal	NA	
Lewis Woodpecker (<u>Asyndesmus lewis</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Yellow-bellied Sapsucker (<u>Sphyrapicus varius</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Ladder-backed Woodpecker (<u>Dendrocopos scalaris</u>)	Breeding	Invertebrates, arboreal	Cavity	
Tyrannidae				
Eastern Kingbird	Feeding, watering,	Invertebrates, volant	NA	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Purple Martin (<u>Progne subis</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Corvidae				
Scrub Jay (<u>Aphelocoma coerulescens</u>)	Feeding, watering, resting	Invertebrates, terrestrial arboreal	NA	
Common Raven (<u>Corvus corax</u>)	Breeding	Carrion	Cliff	
Common Crow (<u>Corvus brachyrhynchos</u>)	Feeding, watering, resting	Carrion	NA	
Pinion Jay (<u>Gymnorhinus cyanocephala</u>)	Feeding, watering, resting	Invertebrates, terrestrial arboreal	NA	
Paridae				
Verdin (<u>Auriparus flaviceps</u>)	Breeding	Invertebrates, arboreal	Tree	
Common Bushtit (<u>Psaltriparus minimum</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Sittidae				
White-breasted Nuthatch (<u>Sitta carolinensis</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Red-breasted Nuthatch (<u>Sitta canadensis</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Certhiidae				
Brown Creeper (<u>Certhia familiaris</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Troglodytidae				
House Wren (<u>Troglodytes aedon</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Winter Wren (<u>Troglodytes troglodytes</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Sewick's Wren (<u>Thryomanes bewickii</u>)	Breeding	Invertebrates, arboreal	Cavity	
Cactus Wren (<u>Campylorhynchus brunneicapillum</u>)	Breeding	Invertebrates, arboreal	Tree	
Long-billed Marsh Wren (<u>Tolematodytes palustris</u>)	Breeding	Invertebrates, arboreal	Marsh	
Rock Wren (<u>Salpinctes obsoletus</u>)	Breeding	Invertebrates, arboreal	Ground	
Mimidae				
Mockingbird (<u>Mimus polyglottos</u>)	Breeding	Invertebrates, arboreal	Tree	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Western Kingbird (<u>Tyrannus verticalis</u>)	Breeding	Invertebrates, volant	Tree	
Cassin's Kingbird (<u>Tyrannus vociferans</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Scissor-tailed Flycatcher (<u>Muscivora forficata</u>)	Feeding, watering, resting	Invertebrates, volant	NA	Unusual occurrence
Ash-throated Flycatcher (<u>Myiarchus cinerascens</u>)	Breeding	Invertebrates, volant	Cavity	
Black Phoebe (<u>Sayornis nigricans</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Say's Phoebe (<u>Sayornis saya</u>)	Breeding	Invertebrates, volant	Buildings, cliffs	
Traill's Flycatcher (<u>Empidonax traillii</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Dusky Flycatcher (<u>Empidonax oberholseri</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Gray Flycatcher (<u>Empidonax wrightii</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Western Flycatcher (<u>Empidonax difficilis</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Western Wood Pewee (<u>Cortecus sordidulus</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Olive-sided Flycatcher (<u>Mniotiltus borealis</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Vermilion Flycatcher (<u>Pyrocephalus rubinus</u>)	Breeding	Invertebrates, volant	Tree	
Alaudidae				
Horned Lark (<u>Amphispiza alpestris</u>)	Breeding	Invertebrates, terrestrial	Ground	
Hirundinidae				
Violet-green Swallow (<u>Tachycineta thalassina</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Tree Swallow (<u>Iridoprocne bicolor</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Bank Swallow (<u>Riparia riparia</u>)	Breeding	Invertebrates, volant	Cavity	
Rough-winged Swallow (<u>Stelgidopteryx ruficollis</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Barn Swallow (<u>Hirundo rustica</u>)	Feeding, watering, resting	Invertebrates, volant	NA	
Cliff Swallow (<u>Petrochelidon pyrrhonota</u>)	Breeding	Invertebrates, volant	Cliff	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Leconte's Thrasher (<u>Toxostoma lecontei</u>)	Breeding	Invertebrates, terrestrial	Tree	
Crissal Thrasher (<u>Toxostora dorsale</u>)	Breeding	Invertebrates, terrestrial	Tree	
Sage Thrasher (<u>Oreoscoptes montanus</u>)	Feeding, watering, resting	Invertebrates, terrestrial	NA	
Turdidae				
Robin (<u>Turdus migratorius</u>)	Feeding, watering, resting	Invertebrates, terrestrial	NA	
Hermit Thrush (<u>Hylocichla guttata</u>)	Feeding, watering, resting	Invertebrates, terrestrial	NA	
Swainson's Thrush (<u>Hylocichla ustulata</u>)	Feeding, watering, resting	Invertebrates, terrestrial	NA	
Western Bluebird (<u>Sialia mexicana</u>)	Feeding, watering, resting	Fruit	NA	
Mountain Bluebird (<u>Sialia currucoides</u>)	Feeding, watering, resting	Fruit	NA	Nevada State Bird
Townsend's Solitaire (<u>Myadestes townsendi</u>)	Feeding, watering, resting	Fruit	NA	
Sylviidae				
Blue-gray Gnatcatcher (<u>Polioptila caerulea</u>)	Breeding	Invertebrates, arboreal	Tree	
Black-tailed Gnatcatcher (<u>Polioptila melanura</u>)	Breeding	Invertebrates, arboreal	Tree	
Golden-crowned Kinglet (<u>Regulus satrapa</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Ruby-crowned Kinglet (<u>Regulus calendula</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Motacillidae				
Water Pipit (<u>Amnis spinolletta</u>)	Feeding, watering, resting	Invertebrates, terrestrial	NA	
Bombycillidae				
Bohemian Waxwing (<u>Bombycilla garrula</u>)	Feeding, watering, resting	Fruit	NA	
Cedar Waxwing (<u>Bombycilla cedrorum</u>)	Feeding, watering, resting	Fruit	NA	
Ptilonotidae				
Phainopepla (<u>Phainopepla nitens</u>)	Breeding	Fruit	Tree	
Laniidae				
Northern Screech Owl	Feeding, watering,	Invertebrates, terrestrial	NA	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Loggerhead Shrike (<u>Lanius ludovicianus</u>)	Breeding	Invertebrates, terrestrial vertebrates, poikilotherms	Tree	
Sturnidae				
Starling (<u>Sturnus vulgaris</u>)	Breeding	Vegetation, seeds	Cavity	
Vireonidae				
Hutton's Vireo (<u>Vireo huttoni</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Bell's Vireo (<u>Vireo bellii</u>)	Breeding	Invertebrates, arboreal	Tree	
Solitary Vireo (<u>Vireo solitarius</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Red-eyed Vireo (<u>Vireo olivaceus</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Warbling Vireo (<u>Vireo gilvus</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Parulidae				
Orange-crowned Warbler (<u>Vermivora celata</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Nashville Warbler (<u>Vermivora ruficapilla</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Virginia Warbler (<u>Vermivora virginiae</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Lucy's Warbler (<u>Vermivora luciae</u>)	Breeding	Invertebrates, arboreal	Cavity	
Yellow Warbler (<u>Dendroica petechia</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Myrtle's Warbler (<u>Dendroica coronata</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Audobon's Warbler (<u>Dendroica auduboni</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Black-throated Gray Warbler (<u>Dendroica nigrescens</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Townsend's Warbler (<u>Dendroica townsendi</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
MacGillivray's Warbler (<u>Dendroica tolmiei</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Yellowthroat (<u>Geothlypis trichas</u>)	Breeding	Invertebrates, arboreal	Marsh	
Yellow-breasted Chat (<u>Icteria virens</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Wilson's Warbler (<u>Wilsonia pusilla</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
American Redstart (<u>Setophaga ruticilla</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Ploceidae				
House Sparrow (<u>Passer domesticus</u>)	Breeding	Vegetation, seeds	Tree	
Icteridae				
Bobolink (<u>Dolichonyx oryzivorus</u>)	Feeding, watering, resting	Invertebrates, terrestrial		
Western Meadowlark (<u>Sturnella neglecta</u>)	Breeding	Invertebrates, terrestrial	Ground	
Yellow-headed Blackbird (<u>Xanthocephalus xanthocephalus</u>)	Breeding	Invertebrates, terrestrial aquatic	Marsh	
Red-winged Blackbird (<u>Agelaius phoeniceus</u>)	Breeding	Invertebrates, terrestrial, aquatic	Marsh	
Hooded Oriole (<u>Icterus cucullatus</u>)	Breeding	Invertebrates, terrestrial	Tree	
Scott's Oriole (<u>Icterus parisorum</u>)	Breeding	Invertebrates, terrestrial	Tree	
Bullock's Oriole (<u>Icterus bullockii</u>)	Breeding	Invertebrates, terrestrial	Tree	
Brewer's Blackbird (<u>Euphagus cyanocephalus</u>)	Feeding, watering, resting	Invertebrates, terrestrial		
Boat-tailed Grackle (<u>Cassidix mexicanus</u>)	Breeding	Invertebrates, terrestrial aquatic	Marsh	
Brown-headed Cowbird (<u>Molothrus ater</u>)	Breeding	Invertebrates, arboreal	Tree	
Thraupidae				
Western Tanager (<u>Piranga ludoviciana</u>)	Feeding, watering, resting	Invertebrates, arboreal	NA	
Summer Tanager (<u>Piranga rubra</u>)	Breeding	Invertebrates, arboreal	Tree	
Fringillidae				
Black-headed Grosbeak (<u>Protonotus melanocephalus</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Blue Grosbeak (<u>Guiraca caerulea</u>)	Breeding	Vegetation, seeds	Tree	
Lazuli Bunting (<u>Passerina amoena</u>)	Feeding, watering, resting	Vegetation, seeds	NA	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Indigo Bunting (<u>Passerina cyanea</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
House Finch (<u>Carpodacus mexicanus</u>)	Breeding	Vegetation, seeds	Tree, shrub	
Pine Siskin (<u>Spinus pinus</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
American Goldfinch (<u>Spinus tristis</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Lesser Goldfinch (<u>Spinus psaltria</u>)	Breeding	Vegetation, seeds	Tree	
Green-tailed Towhee (<u>Chlorura chlorura</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Rufous-sided Towhee (<u>Pipilo erythrophthalmus</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Albert's Towhee (<u>Pipilo aberti</u>)	Breeding	Vegetation, seeds	Tree	
Savannah Sparrow (<u>Passerculus sandwichensis</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Vesper Sparrow (<u>Poocetes gramineus</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Lark Sparrow (<u>Chondestes grammacus</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Black-throated Sparrow (<u>Amphispiza bilineata</u>)	Breeding	Vegetation, seeds	Shrub	
Sage Sparrow (<u>Amphispiza belli</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Slate-colored Junco (<u>Junco hyemalis</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Oregon Junco (<u>Junco oreganus</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Gray-headed Junco (<u>Junco caniceps</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Tree Sparrow (<u>Spizella arborea</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Chipping Sparrow (<u>Spizella passerina</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Brewer's Sparrow (<u>Spizella breweri</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Harris Sparrow (<u>Zonotrichia querula</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
White-crowned Sparrow	Feeding, watering,	Vegetation, seeds	NA	

Species by Family	Primary Use of Habitat	Primary Food Habits	Primary Nest Placement	Special Status and Remarks
Golden-crowned Sparrow (<u>Zonotrichia atricapilla</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
White-throated Sparrow (<u>Zonotrichia albicollis</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Fox Sparrow (<u>Passercella iliaca</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Lincoln's Sparrow (<u>Melospiza lincolni</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Swamp Sparrow (<u>Melospiza georgiana</u>)	Feeding, watering, resting	Vegetation, seeds	NA	
Song Sparrow (<u>Melospiza melodia</u>)	Breeding	Vegetation, seeds	Marsh	
Lapland Longspur (<u>Calcarius lapponicus</u>)	Feeding, watering, resting	Vegetation, seeds	NA	

Species by Family	Creosote Bush	Saltbush	Desert Riparian	Riparian Cliff	Transitional Riparian	Marsh	Open Water	Barren	Urban
Muskrat (<u>Ondatra zibethicus</u>)					R	R			
Muridae									
House Mouse (<u>Mus musculus</u>)	R	H	H	R	C	A			C
Canidae									
Coyote (<u>Canis latrans</u>)	U	R	C	R	R	R		R	R
Kit Fox (<u>Vulpes macrotus</u>)	U	H	R	R	R				R
Gray Fox (<u>Urocyon cinereoargenteus</u>)	R	R	R	R					
Procyonidae									
Ring-tailed Cat (<u>Bassariscus astutus</u>)	R		R	C	R				
Raccoon (<u>Procyon lotor</u>)					R	R			
Mustelidae									
Badger (<u>Taxidea taxus</u>)	C	R	C	R	H				
Western Spotted Skunk (<u>Spilogale gracilis</u>)	R		R	U	C	C			
Striped Skunk (<u>Mephitis mephitis</u>)					R	R			
Felidae									
Bobcat (<u>Lynx rufus</u>)	U		U	U	U				
Bovidae									
Mountain Sheep (<u>Ovis canadensis</u>)	R						R	R	

APPENDIX X. Life history information for mammals on the Las Vegas Wash Unit, Colorado River Basin Salinity Control Act, Title II Study Area. Primary references are Hall (1946), Bradley and Deacon (1971) Bradley and Mauer (1973). NA = not applicable.

Species by Family	Seasonal Use	Primary Habitat Usage	Primary Food Habits	Special Status	Remarks
Soricidae					
Crawford's Desert Shrew (<u>Notiosorex crawfordi</u>)	Year-round	Breeding	Insectivore, terrestrial		Highly secretive habitat specific under debris
Phyllostomatidae					
California Leaf-nosed Bat (<u>Macrotus californicus</u>)	Year-round	See Table	Insectivore, volant		Hibernator
Vespertilionidae					
Yuma Myotis (<u>Myotis yumanensis</u>)	Year-round	See Table	Insectivore, volant		Hibernator
Fringed Myotis (<u>Myotis thysanodes</u>)	Spring, summer, fall	See Table	Insectivore, volant		Migratory, hibernator
Long-legged Myotis (<u>Myotis volans</u>)	Spring, fall	See Table	Insectivore, volant		Migratory, hibernator
California Myotis (<u>Myotis californicus</u>)	Year-round	See Table	Insectivore, volant		Hibernator
Small-footed Myotis (<u>Myotis subulatus</u>)	Spring, fall	See Table	Insectivore, volant		Migratory, hibernator
Silvery-haired Bat (<u>Lasionycteris noctivagans</u>)	Spring, fall	See Table	Insectivore, volant		Migratory, hibernator
Western Pipistrelle (<u>Pipistrellus hesperus</u>)	Year-round	See Table	Insectivore, volant		Hibernator
Big Brown Bat (<u>Epitescus fuscus</u>)	Spring, summer, fall	See Table	Insectivore, volant		Hibernator
Red Bat (<u>Lasiurus borealis</u>)	Spring, fall	See Table	Insectivore, volant		Migratory, hibernator
Hoary Bat (<u>Lasiurus cinereus</u>)	Spring, fall	See Table	Insectivore, volant		Migratory, hibernator
Scotted Bat (<u>Euderma maculatum</u>)	Unknown seasonal	See Table	Insectivore, volant	Threatened & endangered, Federal & State protected	Unknown
Townsend's Big-eared Bat (<u>Plecotus townsendii</u>)	Year-round	See Table	Insectivore, volant		Hibernator
Allen's Big-eared Bat (<u>Plecotus phyllotis</u>)	Year-round	See Table	Insectivore, volant		Hibernator
Pallid Bat (<u>Antrozous pallidus</u>)	Year-round	See Table	Insectivore, volant		Hibernator
Molossidae					
Brazilian free-tailed Bat (<u>Tadarida brasiliensis</u>)	Spring, Summer, fall	See Table	Insectivore, volant		Migratory

Species by Family	Seasonal	Primary Habitat Usage	Primary Food Habits	Special Status	Remarks
Big-Free-tailed Bat (<u>Tadarida molossa</u>)	Spring, fall	See Table	Insectivore, volant		Migratory
Greater Mastiff Bat (<u>Europus perotis</u>)	Spring, fall	See Table	Insectivore, volant		Migratory
Leporidae					
Desert Cottontail (<u>Sylvilagus auduboni</u>)	Year-round	Breeding	Vegetation, terrestrial foliage	Protected by State Game Laws	
Black-tailed Jackrabbit (<u>Lepus californicus</u>)	Year-round	Breeding	Vegetation, terrestrial foliage	Protected by State Game Laws	
Sciuridae					
White-tailed Antelope Ground Squirrel (<u>Amospermophilus leucurus</u>)	Year-round	Breeding	Vegetation, terrestrial seeds, foliage, terrestrial invertebrates		
Round-tailed Ground Squirrel (<u>Spermophilus tereticaudis</u>)	Year-round	Breeding	Vegetation, terrestrial seeds, foliage; terrestrial invertebrates		More abundant in shady areas, hibernator
Geomysidae					
Southern Pocket Gopher (<u>Thomomys umbrinus</u>)	Year-round	Breeding	Vegetation, terrestrial roots - foliage		Completely fossorial & especially abundant in urban development
Heteromyidae					
Little Pocket Mouse (<u>Perognathys longimembris</u>)	Spring, summer, fall	Breeding	Vegetation, seeds, foliage		Hibernator
Long-tailed Pocket Mouse (<u>Perognathys ferrugineus</u>)	Spring, summer, fall	Breeding	Vegetation, seeds, foliage		Hibernator
Merriam's Kangaroo Rat (<u>Dipodomys merriami</u>)	Year-round	Breeding	Vegetation, seeds, foliage		
Desert Kangaroo Rat (<u>Dipodomys deserti</u>)	Year-round	Breeding	Vegetation, seeds foliage		Requires sand dune habitat
Cricetidae					
Western Harvest Mouse (<u>Reithrodontomys megalotus</u>)	Year-round	Breeding	Vegetation, seeds, foliage		Most abundant near water
Canyon Mouse (<u>Peromyscus crinitus</u>)	Year-round	Breeding	Vegetation, seeds, foliage		Prefers rocky habitat
Cactus Mouse (<u>Peromyscus eremicus</u>)	Year-round	Breeding	Vegetation, seeds, foliage		
Deer Mouse (<u>Peromyscus maniculatus</u>)	Year-round	Breeding	Vegetation, seeds foliage		Prefers somewhat mesic habitat
Brush Mouse (<u>Peromyscus boyleyi</u>)	Year-round	Breeding	Vegetation, seeds, foliage		
Southern Grasshopper Mouse (<u>Onychomys torridus</u>)	Year-round	Breeding	Invertebrates, terrestrial; vegetation, terrestrial.		

Species by Family	Seasonal	Primary Habitat Usage	Primary Food Habits	Special Status	Remarks
Desert Wood Rat (<u>Neotoma lepida</u>)	Year-round	Breeding	Vegetation, terrestrial, foliage		
Muskrat (<u>Ondatra zibethicus</u>)	Year-round	Breeding	Vegetation, aquatic, foliage - roots		Found in marsh areas only
Muridae					
House Mouse (<u>Mus musculus</u>)	Year-round	Breeding	Vegetation, terrestrial foliage, seeds		Most abundant near water or urban
Canidae					
Coyote (<u>Canis latrans</u>)	Year-round	Breeding	Vertebrates, homeotherms, poikilotherms, carrion	Fur bearer, state regulated season	
Kit Fox (<u>Vulpes macrotus</u>)	Year-round	Breeding	Vertebrates, homeotherms, poikilotherms, carrion	Fur bearer, state regulated season	Also protected by State law
Gray Fox (<u>Urocyon cinereoargenteus</u>)	Year-round	Breeding	Vertebrates, homeotherms, poikilotherms, carrion	Fur bearer state regulated season	
Procyonidae					
Ring-tailed Cat (<u>Bassariscus astutus</u>)	Year-round	Breeding	Vertebrates, homeotherms, vegetation, fruit	Fur bearer, state regulated season	
Raccoon (<u>Procyon lotor</u>)	Year-round	Breeding	Vertebrates, homeotherms, poikilotherms, vegetation terrestrial fruit		
Mustelidae					
Badger (<u>Taxidea taxus</u>)	Year-round	Breeding	Vertebrates, homeotherms		
Western Spotted Skunk (<u>Spilogale gracilis</u>)	Year-round	Breeding	Vertebrates, terrestrial homeotherms, invertebrates	Fur bearer, state regulated season	
Striped Skunk (<u>Mephitis mephitis</u>)	Year-round	Breeding	Vertebrates, terrestrial invertebrates, vegetation, terrestrial, fruits	Fur bearer, state regulated season	
Felidae					
Bobcat (<u>Lynx rufus</u>)	Year-round	Breeding	Vertebrates, homeotherms, carrion	Fur bearer, state regulated season	
Bovidae					
Mountain Sheep (<u>Ovis canadensis</u>)	Year-round	Breeding	Vegetation, terrestrial foliage	Protected by state game laws	