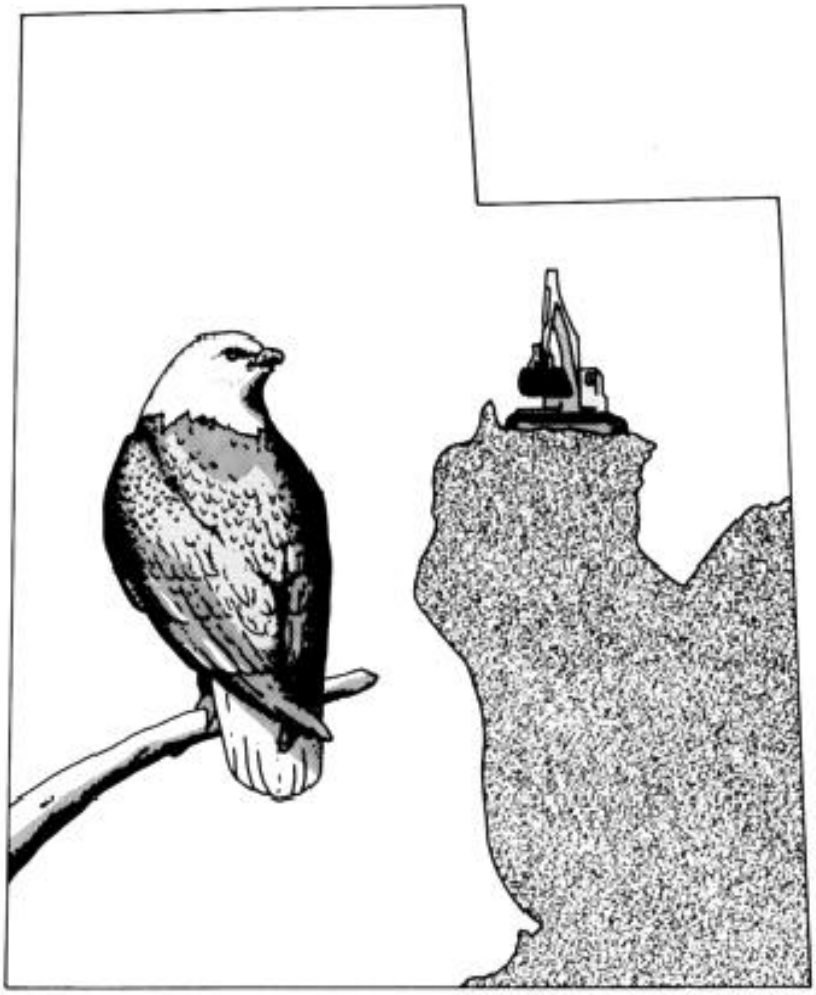
Fauna of Southeastern Utah

and

Life Requisites Regarding

their

Ecosystems



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Utah Division of Wildlife Resources
Department of Natural Resources

FAUNA OF SOUTHEASTERN UTAH AND LIFE REQUISITES REGARDING THEIR ECOSYSTEMS

LARRY B. DALTON

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PUBLICATION NO, 90-11

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PREFACE

This publication was prepared with an intent to assist professional and lay land-use planners. It serves as a quick and simple method for assessing the likely inhabitation of vertebrate wildlife for a project area. The assessment would identify wildlife inhabitation by ecological association in the myriad of ecosystems within southeastern Utah. Without question, professional ecologists, educators, and wildlife enthusiasts will benefit from the information contained herein. This work supersedes Utah Division of Wildlife Resources Publication No.78-16, "Vertebrate Species of Southeastern Utah."

Endorsement of this publication has been given by Utah's Divisions of Oil, Gas, and Mining; State Lands and Forestry; and Wildlife Resources, along with the U.S. Fish and Wildlife Service; U.S. Forest Service; and Bureau of Land Management. Each agency recognizes that although the data contained in this document represents an exhaustive effort, it should not be considered as final. Each and every day, wildlife ecologists gain a little more understanding for the complexities of the natural systems we struggle to manage. Collectively, all ecologists who have ever worked in southeastern Utah, have contributed in some way to this data. There is no doubt that future generations of ecologists will continue to add to this wealth of information.

A multitude of agencies have contributed information about wildlife species and their life requisites along with biological value of ecosystems within southeastern Utah. U.S. Fish and Wildlife Service, National Park Service, Bureau of Land Management, Bureau of Reclamation, Soil Conservation Service, U.S. Forest Service, and Navajo Indian Nation biologists gratefully provided information concerning local sightings and distribution of animals. The ecological staff at the University of Utah, Brigham Young University, and Utah State University were extremely helpful, also. Within Utah’s Department of Natural Resources, wildlife conservation officers, biologists, and state park rangers provided valuable information on wildlife species within their areas of expertise.

Special thanks are extended to Utah Division of Wildlife Resources' personnel who assisted with cost accounting, review, and preparation of this document. The clerical personnel in the Southeastern Region

and the Salt Lake City office made compiling of the data a reality. Artwork for the cover was done by Terry Howick and all other artwork was done by Johanna Felice.

Funding for publication was provided by the coal mine operators who have mining interests in southeastern Utah. Andalex, Beaver Creek Coal Company, Castlegate Coal, Coastal States Energy Company (Southern Utah Fuel Company and Utah Fuel Company), Consolidation Coal Mine, Co-op Mining Company, Cyprus Plateau Mining Company, Energy West Mining Company, Genwall Mining Company, Intermountain Power Association, Sunnyside Coal Mines, Soldier Creek Coal Company, U.S. Fuel Corporation, and Valley Camp of Utah, Inc., each generously donated funds to ensure publication and wide dispersement of this document.

L.B.D. J.S.P. L.A.R.

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INTRODUCTION

This publication addresses the ecology of five classes of vertebrate wildlife that inhabit southeastern Utah piscinian (fish), amphibian, reptilian, avian (birds), and mammalian species. Today 481 species inhabit the region as compared to 450 species when pioneers arrived. Thirty-nine exotics have established populations during that time. Other native species have become endangered, extinct, or extirpated from the region.

Southeastern Utah accounts for about one-fourth of the state's land mass and supports a diverse and abundant wildlife population. Geographically, southeastern Utah represents the east drainages of the Wasatch Plateau, the south drainages of the Tavaputs Plateau and most of the drainages for the Utah portion of the Colorado Plateau. The Colorado Plateau is diverse in structure and in southeastern Utah hosts Cedar Mountain; Henry Mountains, Abajo/Elk Ridge, LaSal Mountains, Dolores Triangle, San Rafael Desert, Burr Desert, Cisco Desert, and Canyonlands (Figure 1).

The southeastern region lies within the upper Colorado River drainage basin and Lake Powell captures flow from the entire region. Lake Powell is an "on-stream" reservoir. It is situated on the Colorado River, which is a fourth order stream that discharges into the Gulf of California in Mexico. Twenty-seven drainage areas have been delineated within southeastern Utah (Figure 1).

Land-use planners, ecologists, and governmental decision makers must form a partnership such that the complex relationship between living organisms (plants and animals) and their environment are assessed in terms of man's activities. Human population growth continues to challenge wildlife's future. Planning and resultant decisions that maintain a healthy environment are the key to wildlife and even human health and survival on this planet. Wildlife is an important barometer to just how well we are doing.

Land-use planners have a need to know not only which animals, but when they reside on a project area along with the relative biological value of the various ecosystems inhabited. This information coupled with knowledge of life requisites for individual species forms the premise to understanding impacts on wildlife from man's activities. Once those impacts are recognized, plans can be formulated to avoid or minimize problems. Ultimately, mitigation must be designed and implemented as compensation for damages to the wildlife resource. Again, knowledge of the project area's wildlife will be needed to formulate mitigation plans.

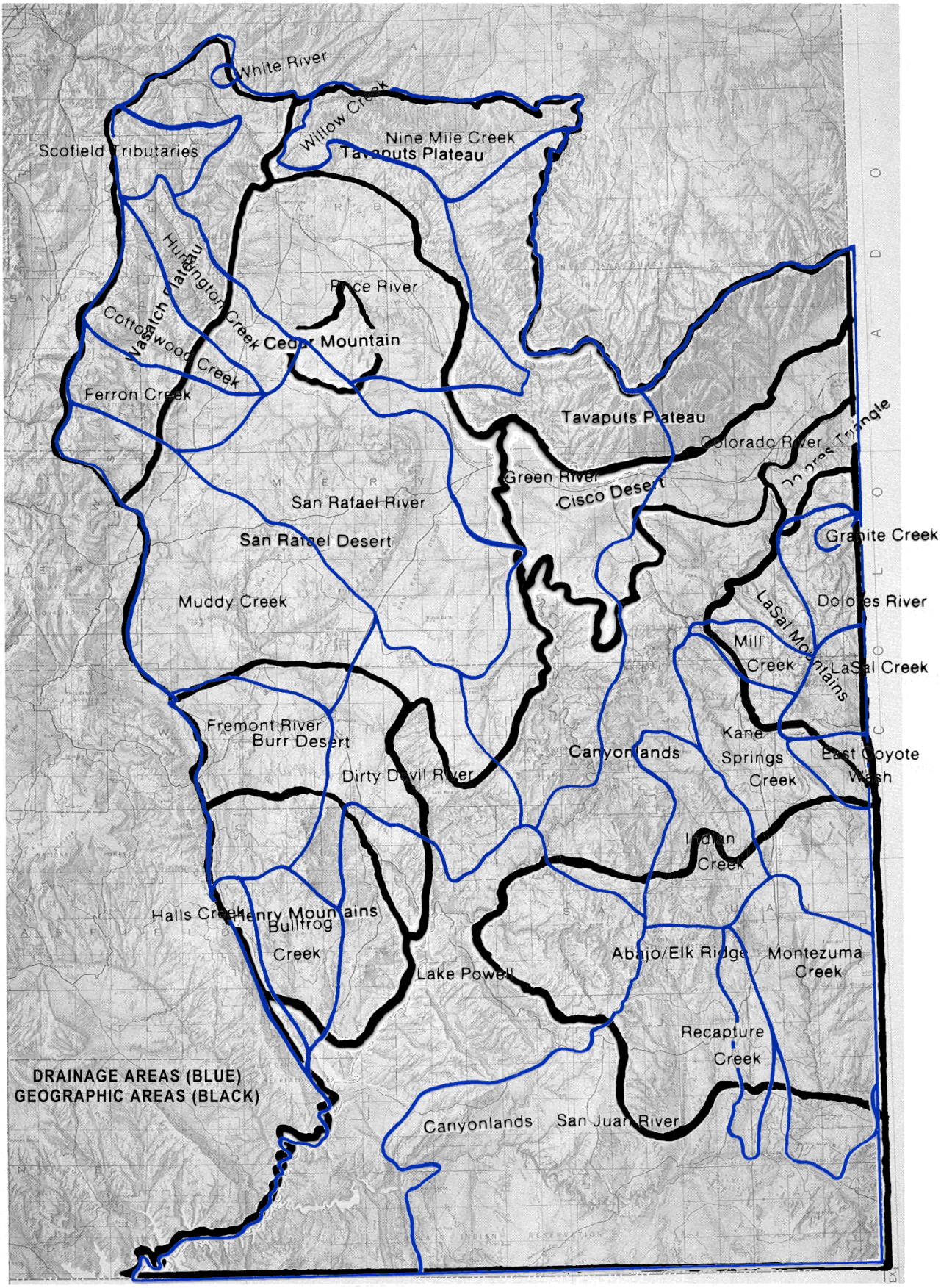
White River
Willow Creek
Nine Mile Creek
Tavaputs Plateau
Scofield Tributaries
Huntington Creek
Wasatch Plateau
Cottonwood Creek
Price River
Cedar Mountain
Ferron Creek
Tavaputs Plateau
Colorado River
Dolores Triangle
Green River
Cisco Desert
San Rafael River
San Rafael Desert
Granite Creek
Muddy Creek
Dolores River
LaSal Mountains
Mill Creek
LaSal Creek
Fremont River
Burr Desert
Canyonlands
Kane Springs Creek
East Coyote Wash
Dirty Devil River
Indian Creek
Halls Creek
Henry Mountains
Bullfrog Creek
Abajo/Elk Ridge
Montezuma Creek
Lake Powell
Recapture Creek
DRAINAGE AREAS (BLUE)
GEOGRAPHIC AREAS (BLACK)
Canyonlands
San Juan River

Figure 1. Southeastern Utah

Definitions

An ecosystem is an identifiable area in which nonliving elements are assimilated by living organisms, then exchanged between plants and/or animals and finally released back into the physical environment to be recycled again.

Ecosystems, singularly or in aggregation, provide habitat for wildlife, which is simply the setting in which an animal is most likely to survive and reproduce. Sufficient space, food, water, and cover (shelter and concealment) represent basic life requisites of habitat for wildlife. Without question, the boundaries between ecosystems are not discrete. The intergrade zone is known as ecotone and provides for the greatest local diversity in ecological assemblage, since species, both plant and animal, from adjoining ecosystems are present.

Ecosystems can occur as continuous or disjunct features extending from low elevation to high elevation. Climate, precipitation, soils, and biota respond to changing elevations, slope, and aspect. Within that continuum there are definable ecological associations:
cold desert (3, 700 to 5,800 ft), sub montane (5,500 to 8,500 ft) and montane (6,500 to 12,721 ft).

The relative abundance given for each species is as follows:

(c) common -these species are found widespread and are abundant;

(I) limited -these species are common, but restricted to a particular area; (u) uncommon -these species are widespread, but not abundant;

(0) occasional -these species are less abundant than those classed as uncommon, but they do periodically occur in the area;

(r) rare -these species are seldom observed because their populations have been reduced due to man's activities. Fortunately, they still occur in numbers adequate for survival;

(t) threatened -these species are threatened with becoming endangered;

(e) endangered -these species are endangered with eminent extinction (Species that are extinct have been lost worldwide, whereas species that have been extirpated from Southeastern Utah may survive in other areas.) ;

(a) accidental -these species regardless of their relative abundance are not normally found in this area; and

(k) these species are unknown to inhabit the area. Seasonal status for avian species is as follows:

(YI) yearlong resident -these species are represented by breeding and wintering populations that occur throughout the year;

(Wt) winter resident -these species migrate to inhabit the area primarily during winter; (Su) summer resident -these species occur and reproduce in the area primarily during summer and usually migrate elsewhere during winter; and

(Tr) transient -these species only pass through the area during spring and/or fall migration, and do not remain in the area for any extended period of time.

Note: Transient birds are assumed to be included with (YI), (Wt) and (Su) populations.

Ranking of relative biological value for ecosystems to population of individual species is as follows:

(C) critical- an area that provides for "sensitive" biological and/or behavioral requisites necessary to sustain the existence and/or perpetuation of one or more wildlife species;

(H) high-priority -an area that provides for "intensive" use by one or more wildlife species;

(S) substantial -an area that provides for "frequent" use by one or more wildlife species; and

(L) limited -an area that provides for only "occasional" use by one or more wildlife species.

Note: There can be crucial time periods in an animal's life cycle during which protection from man's disturbance is essential to the population's survival. During those times the animal's use area would be ranked as being of critical value.

METHODS

The authors surveyed published literature, unpublished agency studies and reports, as well as museum collections regarding southeastern Utah's wildlife. We also interviewed numerous professional wildlife ecologists and wildlife enthusiasts having expertise in the region. Direct observation of animals in the field along with specific sampling strategies helped determine our knowledge for many species.

After evaluating all of the information gathered, decisions were made concerning the likely inhabitation by vertebrate species of wildlife for each of the ecosystems within southeastern Utah. Those decisions also included a subjective but cumulative assessment of data by the authors concerning relative biological value of the various ecosystems to each species of wildlife. The evaluation also identifies the various ecological associations utilized by each wildlife species. This task segregated data for terrestrial species by geographic area within the region. Piscinian (fish) species were evaluated as per major drainage areas. Relative abundance for each species was decided upon and, in the instance of avifauna, seasons of use are identified. A brief evaluation of life requisites for each animal is given. Our focus is on crucial periods, critical valued use areas and important habitat needs for each species.

Species are arranged phylogenetically by family. Genus followed by species nomenclature are ordered alphabetically. Decisions on current acceptable common and scientific names follow Robins, et. al., 1980 and their preliminary draft to be released in 1991, for fish species and USDI/Fish and Wildlife Service, 1987, for amphibians, reptiles, birds, and mammals.

RESULTS

Southeastern Utah's Ecosystems

Eighteen ecosystems characterized as either upland (urban, agricultural, alpine, spruce-fir , aspen, ponderosa, sagebrush-grass, mountain brush, pinyon-juniper, saltbush-grass, blackbrush, grassland, and barren) or wetland (marsh, riparian, mesic meadow, stream, and lake) exist in southeastern Utah. Each ecosystem is defined by its dominant vegetation or some other dominant nonbiotic feature (Figure 2).

Upland Ecosystems

Uplands are characterized as xeric (dry or only small amounts" of moisture) "to"mesic"' (moderate amounts of moisture) and only support vegetation from water that is available through local precipitation. A brief description of each upland ecosystem found in southeastern Utah follows.

"Urban ecosystems" encompass lands developed for urban, suburban, industrial and transportation purposes. Urban areas are situated within all ecological associations. Typically, ornamental vegetation predominates and natural vegetation is generally excluded. The presence of humans and man-made developments is apparent (Figure 2).

"Agricultural ecosystems" are characterized by cultivated croplands or pasture lands. They can be found in the cold desert and sub montane ecological associations. Agricultural areas have been developed for crop production and animal husbandry. The presence of man is apparent, but substantially less than in urban areas (Figure 2).

"Alpine ecosystems" exist only in the montane zone above timberline, which usually begins around 10,000 feet. Dominating vegetation includes grasses, forbs, lichens and mosses. In areas with enough moisture, dwarfed willows or other stunted woody plants may occur (Figure 2).

"Spruce-fir ecosystems" occur only in the montane zone. Engelmann spruce (*Picea engelmanii*) and alpine fir (*Abies lasiocarpa*) are the most likely co-dominant species of this ecosystem. An array of other spruce or fir species may also dominate. Understory vegetation in this ecosystem is generally poorly developed due to shading. Conifers that grow near timber line are often dwarfed. This stunted conifer area is commonly referred to as krumholz (Figure 2).

"Aspen ecosystems" are dominated by quaking aspen (*Populus tremuloides*) and occur only in the montane zone. Aspen often lies between coniferous ecosystems and ponderosa or mountain brush ecosystems. Frequently aspen is only present as an inclusion in coniferous forests. As an ecosystem, aspen is declining in aerial distribution due to conifer invasion. A dense understory of grasses, forbs, and shrubs is generally present in aspen areas. In fact, aspen areas are recognized for their extraordinary production of forage for grazing ungulates (Figure 2).

"Ponderosa ecosystems" are dominated by the ponderosa pine (*Pinus ponderosa*) and occur only in the montane zone. The ponderosa pine is intolerant of shade and therefore predominates. It occurs on north as well as sunny, south-facing slopes. Old growth stands create the classical open forest setting, whereas stands managed for timber harvest support a more diverse understory (Figure 2).

"Sagebrush-grass ecosystems" are dominated by sagebrush (Artemesia spp.) and grass species. Forbs can be abundant. The relative abundance of each vegetation class varies with range condition. This ecosystem can also support a scattering of other shrubs and trees. Sagebrush-grass ecosystems can be found in all ecological associations (Figure 2).

"Mountain brush ecosystems" are found only in the sub montane ecological association. This ecosystem is often dominated by either gambel oak (*Quercus gambeli*) or maple (*Acer* spp.). However, other shrub species may be dominant and are almost always present. Grasses and forbs comprise the understory (Figure 2).

"Pinyon-juniper ecosystems" are dominated by pinyon pine *(Pinus edulis*),and juniper (*Juniperus* spp.). This ecosystem occurs only in the sub montane ecological association. A diverse vegetative understory community is often lacking over wide expanses of the ecosystem. Thus, irregular shaped, but sometimes extensively sized openings have been created in the pinyon-juniper ecosystem for conversion to more productive sagebrush- grass, mountain brush or grassland settings (Figure 2).

"Saltbush-grass ecosystems" are dominated by a variety of saltbushes (*Atriplex* spp.) usually in association with Indian ricegrass (*Oryzopsis hymenoides*) and broom snakeweed *(Gutierrezia sarothrae*). Forbs are more or less abundant depending on range condition. This ecosystem only occurs in the cold desert ecological association (Figure 2).

"Blackbrush ecosystems" are dominated by blackbrush (*Coleogyne ramosissima*) and ephedra (*Ephedra* spp.). This ecosystem only occurs in the cold desert and sub montane ecological associations. It can be dominated by blackbrush in pure stands to the exclusion of other shrubs. Grasses, particularly Indian ricegrass and galleta grass (*Hilaria jamesii*), as well as forbs are usually present. Their representation is dependent upon range condition (Figure 2).

"Grassland ecosystems" are present in all ecological associations. Dominant grasses vary with elevation and range conditions. Forbs and shrubs may be present in limited quantities, but grasses dominate the area (Figure 2).

"Barren ecosystems" occur in all ecological associations. Badlands, talus slopes and cliffs, as well as extensive sandstone formations typify this ecosystem (Figure 2).

Wetland Ecosystems

Wetlands in Southeastern Utah can be found in all ecological associations. They show a unique aquatic and terrestrial relationship. Wetlands are defined as either (1) permanently or seasonally flooded areas, or (2) areas that evidence domination by wetland plants as determined by aerial cover or (3) non-flooded areas that provide hydric soils within the rooting depth of vegetation, if any. Surface areas of wetlands may never be flooded, but can be periodically or continuously flooded. Moisture conditions among wetlands vary from hydric (an abundance of moisture) to mesic (moderate amounts of moisture) and even xeric (dry or only small amounts of moisture) on a seasonal basis. In all situations, moisture, particularly during the growing season, is significantly in excess of that otherwise available through local precipitation. This is in contrast to uplands which are entirely or largely dependent upon local precipitation for their water supply.

"Streams" (water courses), "lakes" (impoundments) as well as "marsh," "mesic meadow," and "riparian" wetlands may singly or in aggregation comprise a wetland ecosystem. Streams are the potentially wetted zone for flowing water in perennial, ephemeral, or intermittent channels. Lakes are the zones represented by the high water level of man- made or natural impoundments that permanently or temporarily hold standing water. Marsh, mesic meadow, and riparian wetlands represent a zone that is often, but not necessarily transitional between uplands and stream or lake areas. Some wetland plants, due to their high water volume demand, are considered hydrophytic and are obligated to only survive in wetland ecosystems. Other wetland plants are not hydrophytic and are considered facultative to surviving in either wetland or upland ecosystems. Upland plants in contrast to wetland plants can only survive in upland ecosystems. Marshes are characterized by emergent grass-like vegetation. Mesic meadows are characterized by obligate and facultative wetland species of grasses and/or forbs. Riparian areas are characterized by a dominance of obligate and facultative woody wetland species (Figure 2).

Figure 2. Presence of ecosystems by ecological association in the geographic areas of Southern Utah

Geographic Areas (Elevation in feet)	Ecosystems along with (1) Cold Desert (3,700–5,800 ft.); (2) Submontane (5,500–8,500 ft.); and (3) Montane (6,500–12,721 ft.) ecological associations.																																															
	UPLANDS																																															
	URBAN			AGRICULTURAL			ALPINE			SPRUCE/FIR			ASPEN			PONDEROSA			SAGEBRUSH/GRASS			MOUNTAIN BRUSH			PINYON/JUNIPER			SALTBUSH/GRASS			BLACKBRUSH			GRASSLAND			BARREN			**WETLANDS**											
																																								MARSH			MESIC MEADOW			RIPARIAN			STREAM			LAKE		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Wasatch Plateau (5,500–10,741)		X	X		X				X			X			X			X		X	X		X			X										X	X		X	X		X	X		X	X		X	X		X	X
Tavaputs Plateau (5,500–10,118)					X							X			X			X		X	X		X			X										X	X		X	X		X	X		X	X		X	X		X	X
Cedar Mountain (5,500–7,664)																				X			X			X										X			X			X			X			X			X	
Henry Mountains (5,500–11,506)					X				X			X			X			X		X	X		X			X						X				X	X		X	X		X	X		X	X		X	X		X	X
Abajo/Elk Ridge (5,500–11,362)		X			X				X			X			X			X		X	X		X			X						X				X	X		X	X		X	X		X	X		X	X		X	X
LaSal Mountains (5,500–12,721)		X			X				X			X			X			X		X	X		X			X						X				X	X		X	X		X	X		X	X		X	X		X	X
Dolores Triangle (3,937–7,428)				X	X														X	X			X			X		X			X	X		X	X		X	X		X	X		X	X		X	X		X	X		X	X	
San Rafael Desert (4,120–7,920)	X	X		X	X														X	X			X			X		X			X	X		X	X		X	X		X	X		X	X		X	X		X	X		X	X	
Burr Desert (4,500–6,522)	X			X															X	X			X			X		X			X	X		X	X		X	X		X	X		X	X		X	X		X	X		X	X	
Cisco Desert (3,937–5,300)	X			X															X									X						X			X			X			X			X			X			X		
Canyonlands (3,700–10,388)	X	X		X	X							X			X			X	X	X	X		X			X		X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X