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Division of Wildlife Resources—Utah Natural Heritage Program

VERTEBRATE INFORMATION
COMPILED BY THE UTAH NATURAL HERITAGE PROGRAM:
A PROGRESS REPORT

Publication Number 03-45
Utah Division of Wildlife Resources
1594 W. North Temple
Salt Lake City, Utah
Kevin Conway, Director

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COMPILED BY THE UTAH NATURAL HERITAGE PROGRAM:
A PROGRESS REPORT

by

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Introduction

The Utah Natural Heritage Program (UNHP) assimilates and synthesizes information concerning rare species for use in land management and species conservation applications. This information is maintained in the UNHP database and includes both species-level information—e.g., assessments of species conservation status from a statewide perspective—and population-level information, which includes GIS coverages for species of high conservational interest.

Beginning in 1996 an effort to develop information in the UNHP database for animal species was funded by the Utah Reclamation, Mitigation, and Conservation Commission under authority of the Central Utah Project Completion Act. Initial efforts focused on assigning conservation priority ranks. Several factors—comprising the number and size of populations, the extent of the Utah range, population trends, and threats to population viability—for each vertebrate species occurring in the state were considered in the development of relative conservation priority ranks. Species having the greatest and most immediate conservation needs comprise the UNHP tracking list, which designates species for which data are acquired and managed in the UNHP database. A UNHP report completed during 1997 (UDWR 1997) summarized the UNHP vertebrate tracking list and reviewed literature pertaining to the conservation status of these species.

Since 1997, a focus of database development efforts has been the acquisition of population-level data, comprising geospatial attributes of populations and information pertaining to their status and viability, such as observation dates, population estimates, population trends, and habitat condition. Although published literature has been an important source of these data, a large portion of the information in the database is unpublished. Many records have been acquired through queries of museum research collections, notably collections maintained by the University of Utah's Museum of Natural History and Brigham Young University's Monte L. Bean Museum. Many other unpublished records in the database have been acquired through collaboration with agency biologists, including those associated with the U. S. Fish and Wildlife Service (USFWS), U. S. Forest Service, and the Bureau of Land Management. Data acquired within UDWR from the various programs involved in the management of native species comprises the bulk of the unpublished information in the database. Concurrent with the development of population-level data, the UNHP tracking list has been modified as data have been acquired and changes in conservation priorities have become evident. This report summarizes the information contained in the UNHP database for the 132 taxa on the current vertebrate tracking list.

Species Accounts

Species accounts presented in the report are intended to provide a brief summary of information pertaining to the status of vertebrates of high conservational priority in Utah. They include 4 sections. The TAXONOMY AND NOMENCLATURE section provides a taxonomic context for the species, including information about subspecies in Utah and nomenclatural synonyms. Discussions of subspecies, scientific names, and common names are provided in an attempt to resolve potential confusion regarding nomenclature arising from advancements in systematics and differences of opinion in the interpretation of systematic data. Anticipated taxonomic changes are also noted. The second section identifies CONSERVATION STATUS DESIGNATIONS assigned by certain government agencies, such as listing status under the Endangered Species Act or inclusion in the UDWR Sensitive Species List. The DISTRIBUTION AND ABUNDANCE section comprises a description of the distribution of populations in Utah, the habitats that are occupied, the sizes and trends of populations, and threats to population viability. These are among the factors of primary consideration in the assessment of conservation status and the assignment of state conservation priority ranks.

A distribution map is included with each species account. Each map depicts geospatial data from the UNHP database using a shaded relief map of Utah overlaid with county boundaries as a backdrop. A map showing county names is provided in Appendix 1. Populations are represented in the UNHP GIS database as polygons. The majority of these are quite small, some representing a single collection point, and are not visible when plotted at a statewide scale. For this reason, distribution maps developed for this report include a single central point for each polygon in the UNHP database, allowing all populations to be visible at a small scale. The extent of polygons larger than the points, however, is necessarily under-represented. Not all records appear on maps in this report. A central tenant of the UNHP mapping methodology is that species locations are added to the database only when they have conservational relevance. For this reason, sightings of migrants, dispersers, and other transient occurrences are not included in the UNHP database.

Symbols in most maps differentiate between recent and historical data. Somewhat arbitrarily, records collected prior to 1983 (i.e, more than 20 years ago) are considered to be historical data for most species. In a few instances, other dates were chosen, particularly if notable changes in distribution are known to have occurred more recently than 1983. The use of different symbols on maps is intended only to coarsely indicate how recently populations have been detected and does not necessarily indicate the current status of populations. Designation of data as historical is not meant to imply that the population has been extirpated. Often, the lack of new data reflects sampling effort or the likelihood of a species being detected more than changes in distribution. Similarly, populations that have been detected within the last 20 years do not necessarily persist. For these reasons, maps should be interpreted with caution.

Bony Fishes

Leatherside Chub
Gila copei

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: Tanner (1936) referred to this species as *Richardsonius copei*, which he called the “leather-sided minnow.” Johnson and Jordan (2000) presented molecular evidence that *G. copei* comprises two distinct evolutionary lineages. Further analysis may reveal that differentiation is sufficient for the recognition of two species. The northern populations appeared to be more closely related to members of the genus *Lepidomeda* than to the southern populations (Johnson and Jordan 2000).

CONSERVATION STATUS DESIGNATIONS

This species is included in the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is native to the Bonneville Basin (Fig. 1) and, outside Utah, the Snake River system. Extant populations in the Sevier River drainage and tributaries of Utah Lake comprise the southern evolutionary unit recognized by Johnson and Jordan (2000), which would represent a species endemic to Utah if further analysis shows it to be distinct at the species level. Extant populations in the Bear River drainage of north-central Utah are representative of Johnson and Jordan’s (2000) northern evolutionary unit. A population may also exist in Goose Creek, a tributary of the Snake River, in northwestern Box Elder County (P. Thompson, UDWR, pers. comm. 2003). Introduced populations occur in the Colorado River drainage (e.g., the Dirty Devil and Fremont rivers).

Within this range, populations occupy streams or rivers, often in pools or in reaches with low or moderate currents. Wilson and Belk (1996) found leatherside chubs to occupy reaches of Salina Creek where the stream depth was between 0.25 and 0.75 m and water velocity was below 0.6 m/s. Substrates composed of coarse fines may be preferred over silt or gravel substrates (Wilson and Belk 1996). Relatively low amounts of overhanging riparian vegetation may also improve habitat suitability (Wilson and Belk 1996).

Although the species historically occurred in most drainages in the eastern Bonneville Basin, the current distribution is fragmented and much reduced (Wilson and Belk 2001). Populations in streams and wetlands in the Salt Lake Valley have evidently been extirpated (Johnson and Jordan 2000), as have those in the Beaver River drainage (Wilson and Belk 1996). Wilson and Belk (1996) estimated that populations occupy only 58% of the historical range in the upper Sevier River drainage. Habitat alteration, particularly as a result of water withdrawals and damming, and non-native fish introductions are the primary cause of the dramatic reduction of the distribution and

abundance of this species (Wilson and Belk 2001). Of importance, too, is that this species readily hybridizes with the widely introduced redbreasted sunfish (*Richardsonius balteatus*) (Baxter and Stone 1995).

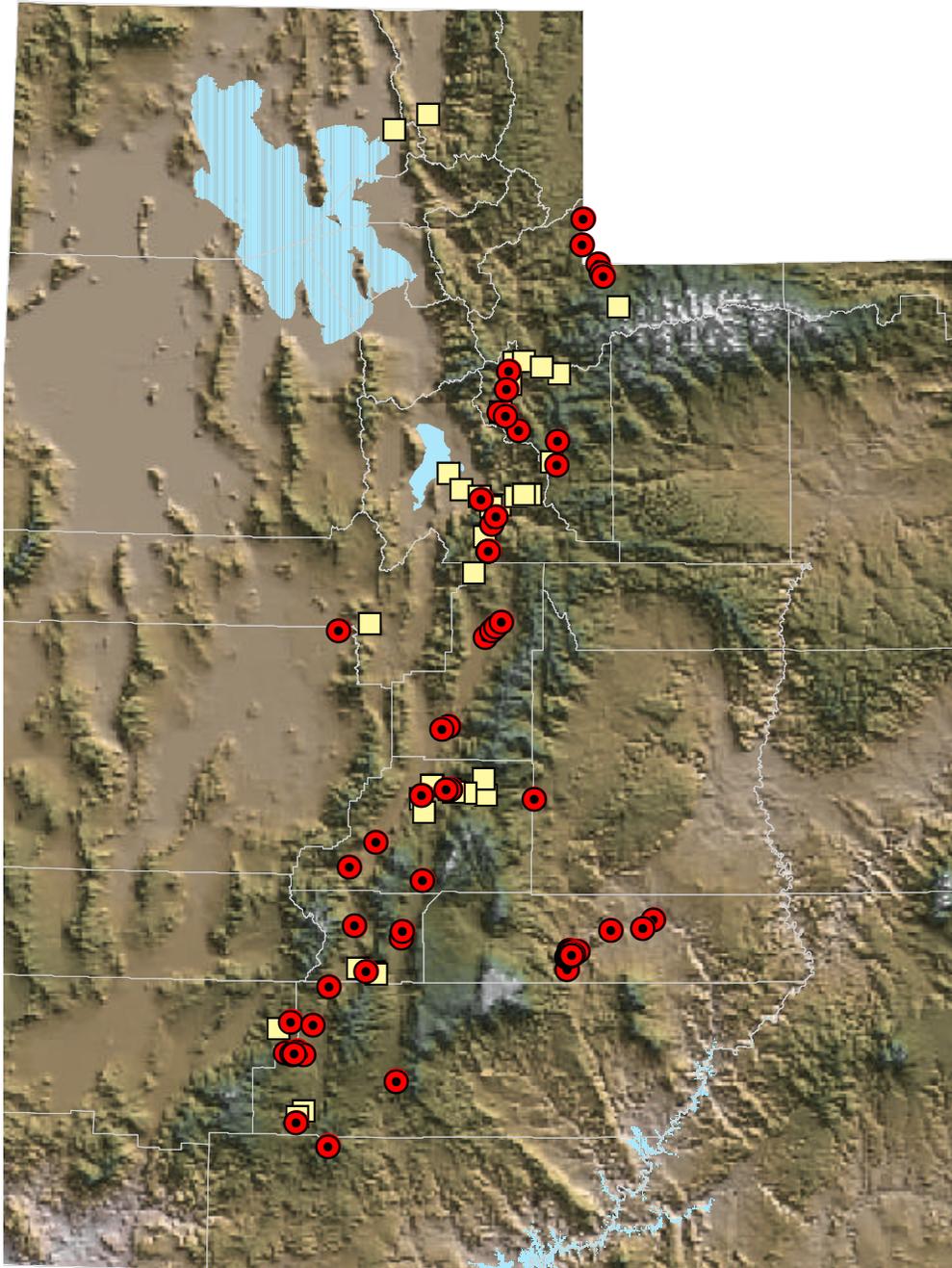


Figure 1. The distribution of the leatherside chub (*Gila copei*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Humpback Chub
Gila cypha

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: No subspecies have been proposed.

CONSERVATION STATUS DESIGNATIONS

This species is listed as endangered by USFWS, having been among the species appearing on the Endangered Species List of 1967 (32 Federal Register 4001) and among the first species designated under the Endangered Species Act of 1973 (38 Federal Register No. 106). It is included in the UDWR Sensitive Species List (UDWR 2003) by virtue of its federal status. A document describing recovery goals (USFWS 2002a) has been produced as a guide to management and conservation efforts.

DISTRIBUTION AND ABUNDANCE IN UTAH

The humpback chub occurs in large rivers, primarily in canyon-bound reaches, of the Colorado River drainage (Fig. 2). Spawning occurs in deep, swift water over clean gravel or cobbles. Adults are often found in deep, recirculating eddies and other deep-water habitats. Sub-adults occupy rather shallow water with slow currents (Berg 1983, USFWS 2002a).

Currently, reproducing populations are considered to be extant in 3 locations: Westwater Canyon (Colorado River), Cataract Canyon (Colorado River), and Desolation and Gray canyons (Green River) (USFWS 2002a). A fourth population located in the Colorado River in Colorado near the Utah state line (i.e., the Black Rocks populations) might extend into Utah. Similarly, fish from a population in the Yampa River of northeastern Colorado might be found in the Green River near the mouth of the Yampa River. Range fragmentation and insufficient historical data contribute to a poor understanding of the historical distribution and population boundaries (USFWS 2002a). Historically the occupied range was certainly larger. Records suggest that much, if not all, of the Green and Colorado rivers and some of the major tributaries (e.g., the White River) supported this species (USFWS 2002a). The three populations comprise an estimated 4,000 to 7,000 individuals (USFWS 2002a). The former abundance of this species is incompletely known, but populations are considered to have declined dramatically during the 1900s, particularly following the construction of major dams during the 1950s (e.g., see comments by Sigler and Miller 1963, USFWS 2002a). Based on scant historical data, USFWS (2002a) estimated that range-wide the species occurs in only 68% of historically occupied habitat.

The numerous threats to extant populations are derived primarily from the fundamental ecological changes that have followed the damming of major rivers and tributaries in the Colorado River drainage. Changes in sediment deposition, flow, and water temperature caused by dams have resulted in loss and alteration of aquatic habitats and

have favored non-native competitors and predators. Increased hybridization among native *Gila* species may be symptomatic of changes in habitat and movement patterns, and genetic introgression is now an important threat. Small population sizes resulting from population decline and fragmentation may have implications for the maintenance of long-term genetic diversity.

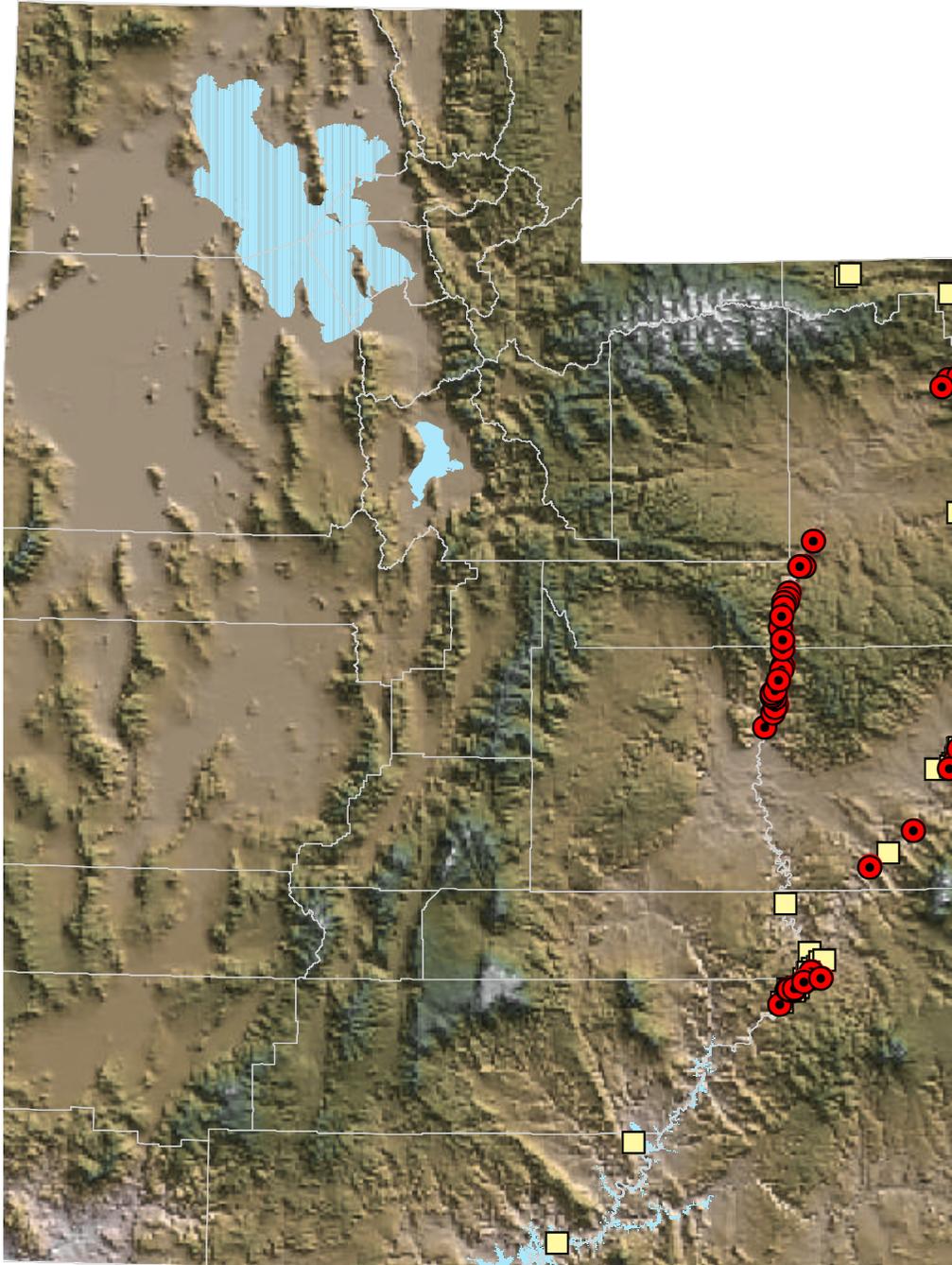


Figure 2. Distribution of the humpback chub (*Gila cypha*). Red circles represent records since 1988, inclusive, and yellow squares represent records before 1988.

Bonytail
Gila elegans

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: No subspecies have been proposed.

OTHER NAMES: The taxon *elegans* was formerly considered to be a subspecies of the roundtail chub, *Gila robusta* (e.g., Sigler and Miller 1963). Some authors use "bonytail chub" as the common name.

CONSERVATION STATUS DESIGNATIONS

The bonytail was listed during 1980 as an Endangered Species under the Endangered Species Act of 1973 (45 Federal Register 27710-27713). The species is included in the UDWR Sensitive Species List (UDWR 2003) because it is federally listed. Recovery goals (USFWS 2002b) have been published to guide management and conservation efforts.

DISTRIBUTION AND ABUNDANCE IN UTAH

This fish is endemic to the Colorado River drainage (Fig. 3), but no reproducing populations are thought to persist in the wild (USFWS 2002b). The historical distribution is poorly documented, and the interpretation of records is complicated by the difficulty of distinguishing this species from the sympatric *G. robusta*, *G. cypha*, and hybrids of these 3 congeners. Despite the paucity of data, it is generally assumed that this species formerly ranged throughout the Colorado and Green rivers and large tributaries of these rivers (USFWS 2002b). Behnke and Benson (1980) stated: "The optimum habitat of bonytail chubs, based on former collections when they were abundant, appears to be the open river areas of relatively uniform depth and current velocity. This type of habitat typically consists of a shifting sand bottom[,] water depths of 3 to 4 feet, and a relatively constant, moderately swift current." Adults are found mainly in pools and eddies with silt, sand, or boulder substrates; young occur in still water or shallow pools with silt or sometimes gravel or small rubble substrates (see reviews by Timothy 1983, USFWS 2002b).

Captures were historically infrequent, and encounters became increasingly rare after the 1950s. The last documented captures of bonytails were during the late 1980s (Valdez and Williams 1993), and very few adults have been found since 1977 (Gustaveson et al. 1995, Tyus et al. 1982, 1987, Moretti et al. 1989, Valdez and Williams 1993, as cited in USFWS 2002b). Few adults may persist, scattered sporadically in the Green and Colorado rivers. Efforts are underway to re-establish breeding populations through the release of hatchery-raised fish, and some stocked individuals have been subsequently recaptured.

The decline of populations is a result of the fundamental ecological changes that have followed the damming of major rivers and tributaries in the Colorado River drainage.

Changes in sediment deposition patterns, flow, and temperature caused by dams have resulted in loss and alteration of aquatic habitats and have favored non-native competitors and predators. Increased hybridization among native *Gila* species may be symptom of changes in habitat and movement patterns, and genetic introgression is now an important threat. Small population sizes resulting from population decline and fragmentation may have implications for the long-term genetic diversity of populations.

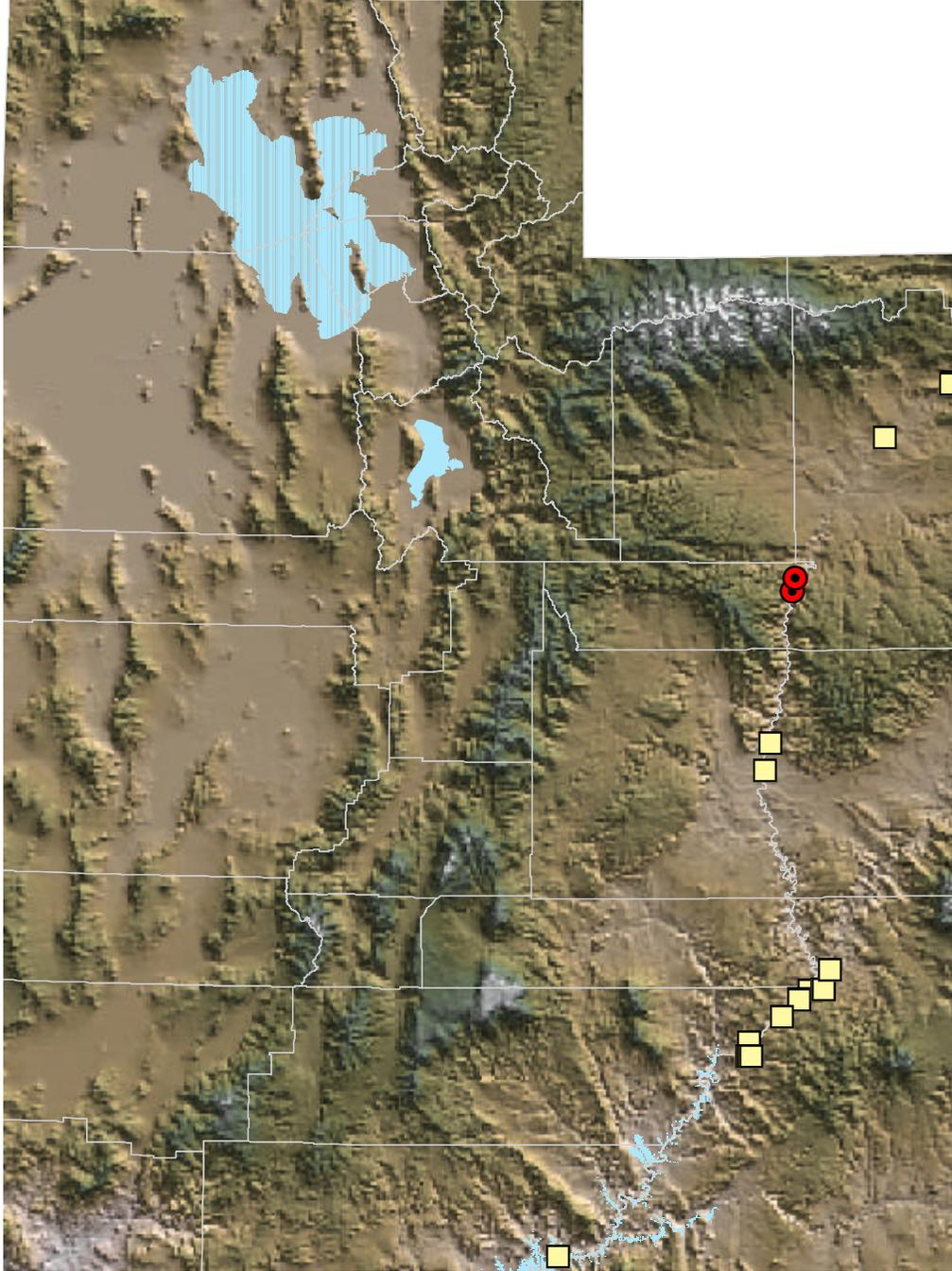


Figure 3. Distribution of the bonytail (*Gila elegans*). Red circles represent records obtained during 2002, representing recaptures of stocked fish, and yellow squares represent records of captures prior to 1990.

Roundtail Chub
Gila robusta

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: The type subspecies, *Gila robusta robusta*, occurs in Utah. Some authors do not consider any subspecies to be valid, however.

OTHER NAMES: The Virgin River chub, *G. seminuda*, was formerly considered to be a subspecies of the roundtail chub.

CONSERVATION STATUS DESIGNATIONS

This species is included in the UDWR Sensitive Species List (2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This fish is endemic to the Colorado River drainage (Fig. 4) where it formerly was found throughout the large, mainstem rivers and also in tributary streams, particularly in the low-gradient reaches of large tributaries. Although this species remains widespread within the Colorado River Drainage and may be locally abundant, population declines have been suspected since 1963 (Sigler and Miller 1963). The occupied range in the Upper Colorado River Basin, a large proportion of which is in Utah, is approximately 55% of the historical extent (Bezzlerides and Bestgen 2002). Populations persist in much of the Green and Colorado rivers but have been eliminated from sections inundated by Lake Powell and Flaming Gorge Reservoir and tailwaters below the dams. Populations in major tributaries may, too, have been lost (Bezzlerides and Bestgen 2002).

Evident population declines are following the pattern of range reduction and fragmentation seen in populations of other large-river fish species occurring in the Colorado River System. Roundtail chub populations have been affected by the dramatic alteration of habitat in the Colorado River and its tributaries following the construction of large reservoirs in this system. Changes in the physical properties of the aquatic habitat can directly affect survivorship and reproductive success. Habitat conditions have allowed introduced populations of nonnative fish species to flourish, affecting roundtail chub populations through predation or competition.

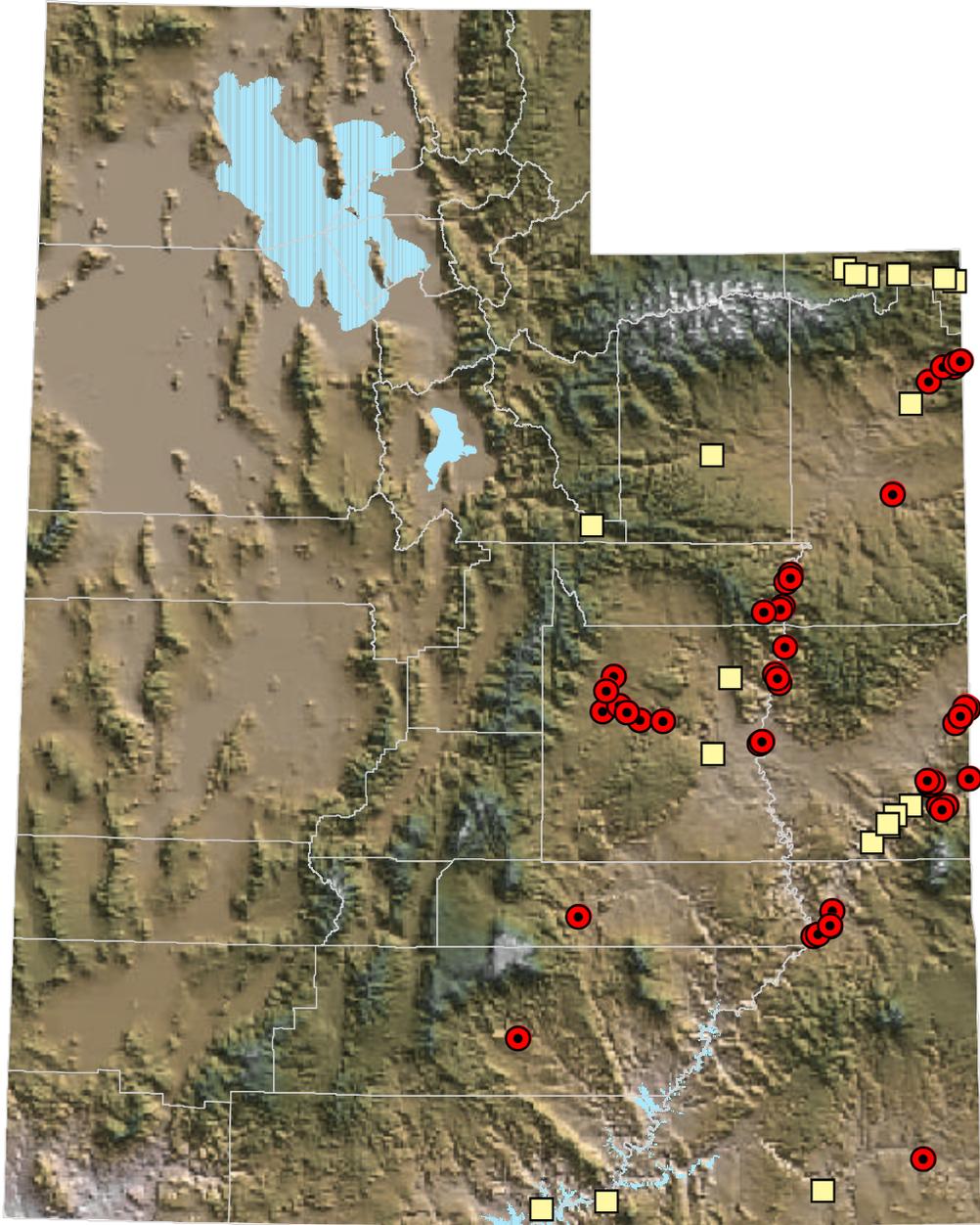


Figure 4. Distribution of the roundtail chub (*Gila robusta*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Virgin River Chub
Gila seminuda

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: No subspecies of *Gila seminuda* have been proposed.

OTHER NAMES: The taxon *seminuda* was formerly considered to be a subspecies of the roundtail chub, *G. robusta* (e.g., Sigler and Miller 1963).

CONSERVATION STATUS DESIGNATIONS

USFWS listed the species as endangered under the Endangered Species Act during 1989 (54 Federal Register 35305-35311). This species is included in the UDWR Sensitive Species List (UDWR 2003) because it is federally listed. Recovery goals have been produced as a guide to conservation efforts (USFWS 1994a).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is endemic to the Virgin River system, occurring from Pah Tempe Springs to the Washington Fields Diversion and in limited numbers below this diversion (Fig. 5). This species is often found in pools and other deep, slow sections of the river, preferring areas with vegetation and boulders. Occupied areas typically have water 0.6 to 3 ft deep, still to 2.5 ft/sec velocity, with sand substrates and boulders or other cover, and a temperature of about 75° F (see summary in USFWS 1994a).

Populations have declined from historical levels. Threats to populations include alterations of flow and dewatering of the Virgin River system, degradation of water quality (pollution from agricultural runoff, sewage, etc.), and competition with non-native fish.

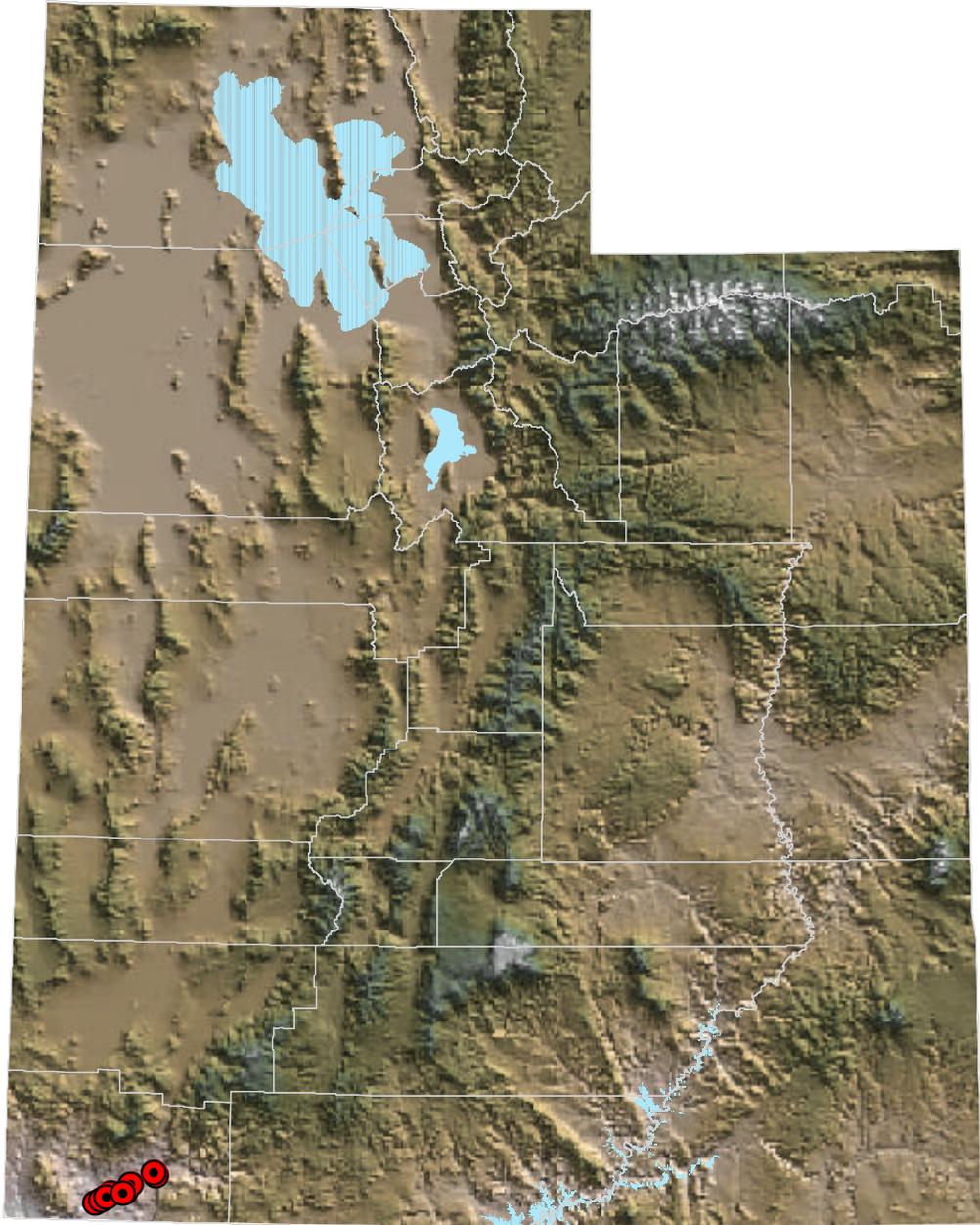


Figure 5. Distribution of the Virgin River chub (*Gila seminuda*).

Least Chub
Iotichthys phlegethontis

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: No subspecies have been proposed.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003) as a Conservation Species. Recovery efforts are guided by a multi-agency conservation agreement (Perkins et al. 1998).

DISTRIBUTION AND ABUNDANCE IN UTAH

This fish is endemic to the Bonneville Basin. Historically this species was widely distributed in streams, marshes, springs, and freshwater ponds at the lower elevations of the basin (e.g., Sigler and Miller 1963). The current distribution is much reduced (Fig. 6). Most, if not all, stream populations have been lost, and most of the few extant populations occur in alkaline marshes with associated springs. These marshes may represent suboptimal habitat where competition with introduced aquatic species is limited (Lamarra 1981). Attempts to establish populations elsewhere within the Basin have been made, and one introduction, in western Box Elder County, has been successful.

A decline in distribution and abundance was first noted in the 1940s and 1950s (Holden et al. 1974) and has not yet been reversed (Osmundson 1985, USFWS 1995). Habitat loss has been a major factor in the decline of populations (Holden et al. 1974). Flow alteration and water withdrawal in streams and changes to water levels in wetlands not only reduce the amount of available habitat and have implications for the maintenance of appropriate habitat conditions but also affect movement patterns, access to prey, and vulnerability to predators (Holden et al. 1974, USFWS 1995). Among the most important habitat alterations has been the introduction of nonnative aquatic species, notably the mosquitofish (*Gambusia affinis*). Nonnative species are often predators or competitors and population declines and extirpations are often correlated with the presence of nonnative species (Lamarra 1981).

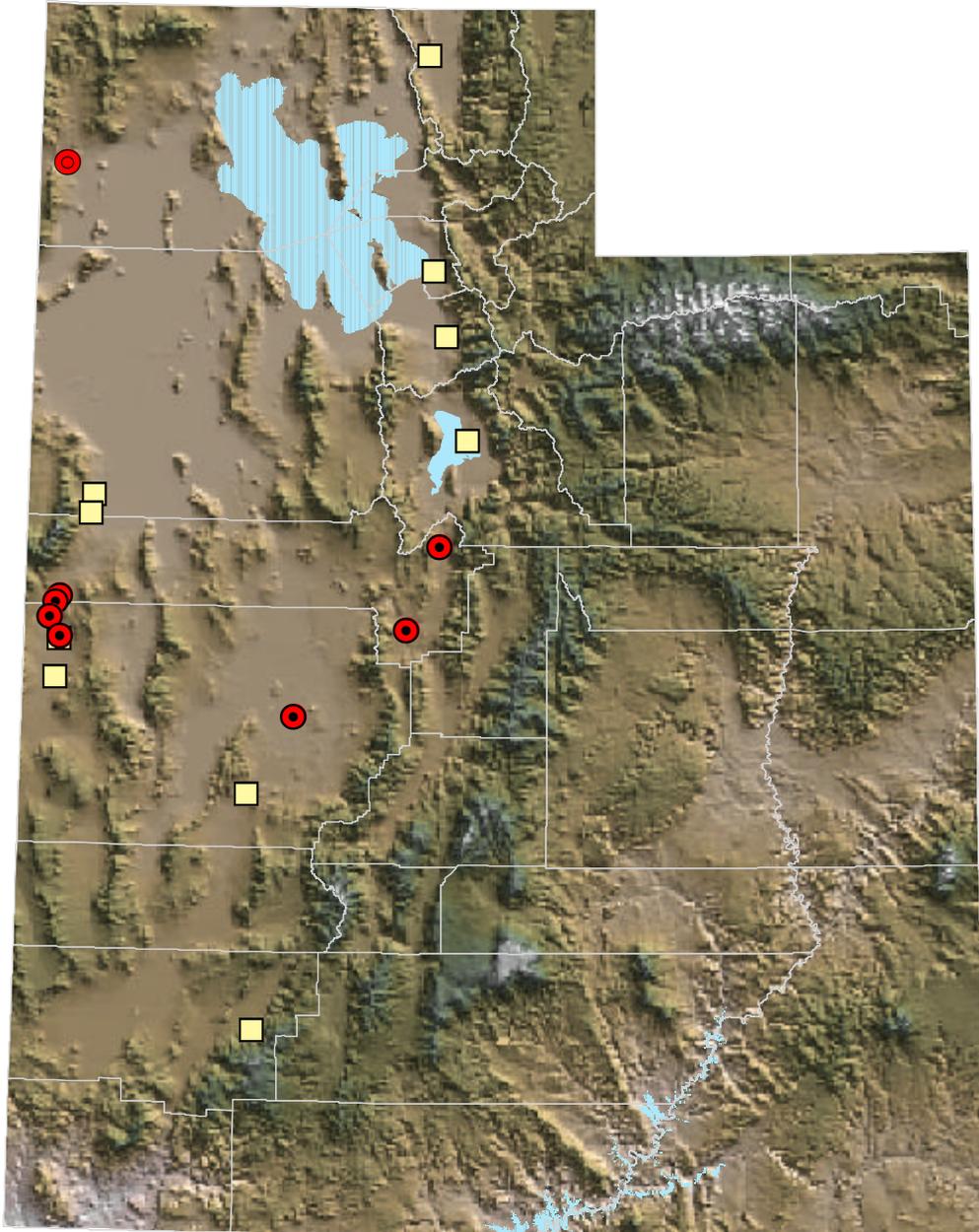


Figure 6. Distribution of the least chub (*Iotichthys phlegethontis*). Red circles with black centers represent records since 1983 of native populations. The red circle with a red center indicates an extant introduced population. Yellow squares represent records before 1983.

Virgin Spinedace
Lepidomeda mollispinis

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: The subspecies that occurs in Utah is *Lepidomeda mollispinis mollispinis*.

OTHER NAMES: This species was formerly referred to as *L. vittata* (e.g., Tanner 1936).

CONSERVATION STATUS DESIGNATIONS

This species has been designated a Conservation Species, and is included in the UDWR Sensitive Species List (2003) by virtue of this designation. Status and recovery needs were initially summarized in a multi-agency conservation agreement and strategy (Lentsch et al. 1995).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is endemic to the Virgin River drainage in a small area of Utah, Nevada, and Arizona; in Utah it occurs only in Washington County (Fig. 7) (Rinne 1971, Cross 1975, Addley and Hardy 1993). Within its range, the species occurs in both mainstem and tributary reaches, particularly in areas with relatively swift runs interspersed with shaded pools.

It has been estimated that the range of this species has been reduced from its historical extent by approximately 40% (Addley and Hardy 1993). Although populations are actively monitored, population size estimates are not available. Dramatic fluctuations in density are routinely detected (e.g., Morvilius et al. 2003), but it is likely that these fluctuations are driven at least in part by flow patterns and other temporal variations in habitat conditions. Habitat degradation arising from water withdrawal, pollution, impoundments, and channelization is a primary factor in the decline of populations (Morvilius et al. 2003). Degraded stream reaches have resulted in habitat fragmentation, which limits the possibility of recolonization when subpopulations are lost. Altered conditions have also favored the establishment of nonnative competitors and predators.

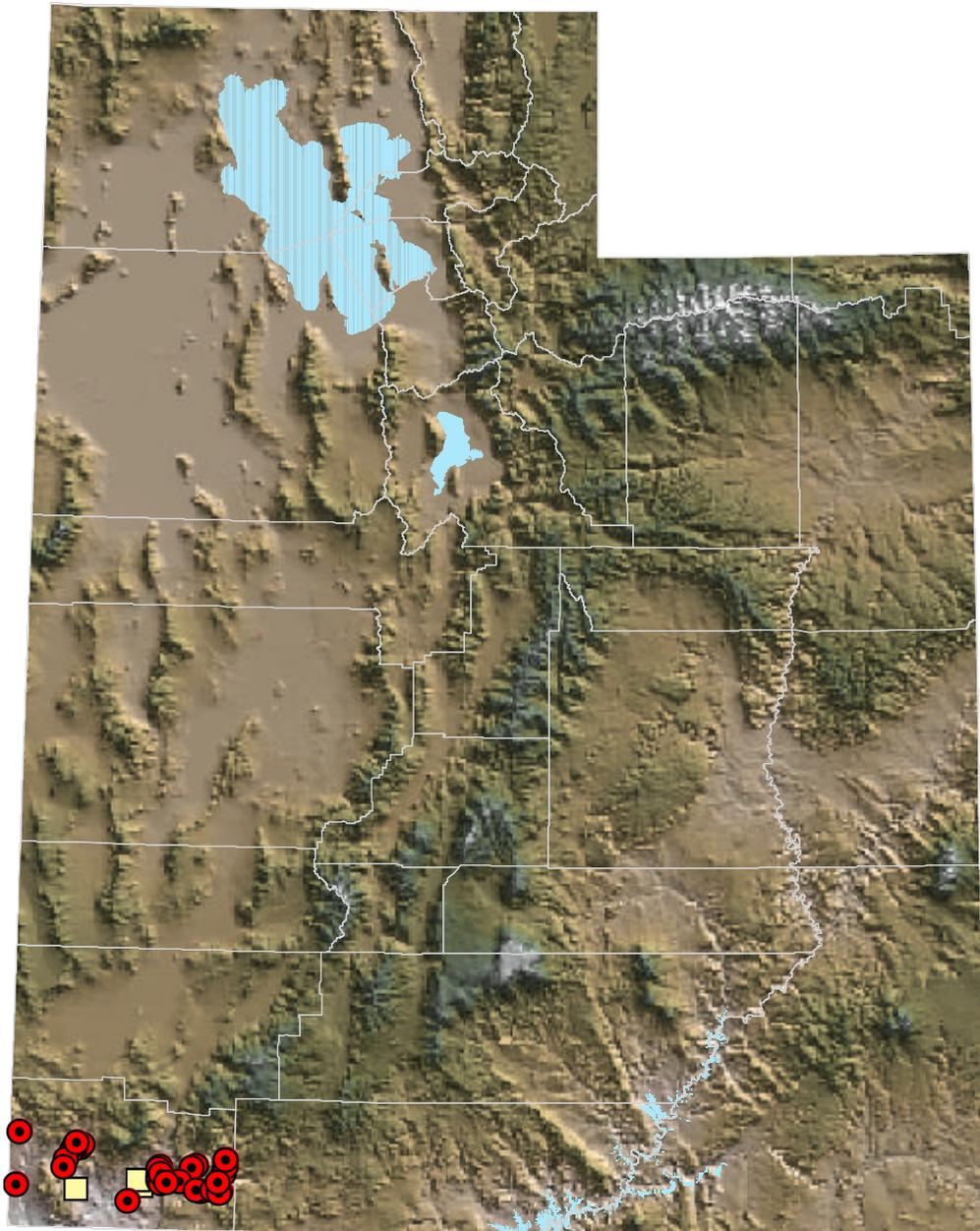


Figure 7. Distribution of the Virgin spinedace (*Lepidomeda mollispinis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Woundfin
Plagopterus argentissimus

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: No subspecies have been identified.

CONSERVATION STATUS DESIGNATIONS

The woundfin was listed as endangered on during 1970 (35 Federal Register 16047), and conservation efforts are centered on a recovery plan (USFWS 1994a). This species is included in the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in Utah only in the Virgin River system in Washington County (Fig. 8). The Virgin River fishes recovery plan (USFWS 1994a) summarized habitat findings: "Woundfin adults and juveniles are most often collected from runs and quiet waters adjacent to riffles. Juveniles use habitats which are generally slower and deeper than those characteristic of adults. Woundfin larvae are collected in backwaters or slow-velocity habitat along stream margins, often associated with dense growths of filamentous algae."

The species is rarely encountered, and the populations are declining. The species probably occurred in Utah as a single population prior to fragmentation by water diversions and dams. Persisting populations are probably not viable, even in the short term. Deacon (1988) wrote: "... [S]ince 1983, woundfin have been variously adversely affected throughout the remnant of their original range in which they still occur", and "[w]oundfin population size has declined dramatically in more than 60% of its remaining range since 1983." Numbers have continued to decrease, and the species is exceptionally uncommon in all reaches in which it persists. Threats include flow alterations in association with water development (Deacon 1988), pollution and perturbations in water chemistry, introduced parasites (Heckman et al. 1987, Deacon 1988), and introduced competitors, notably red shiners (*Cyprinella lutrensis*).

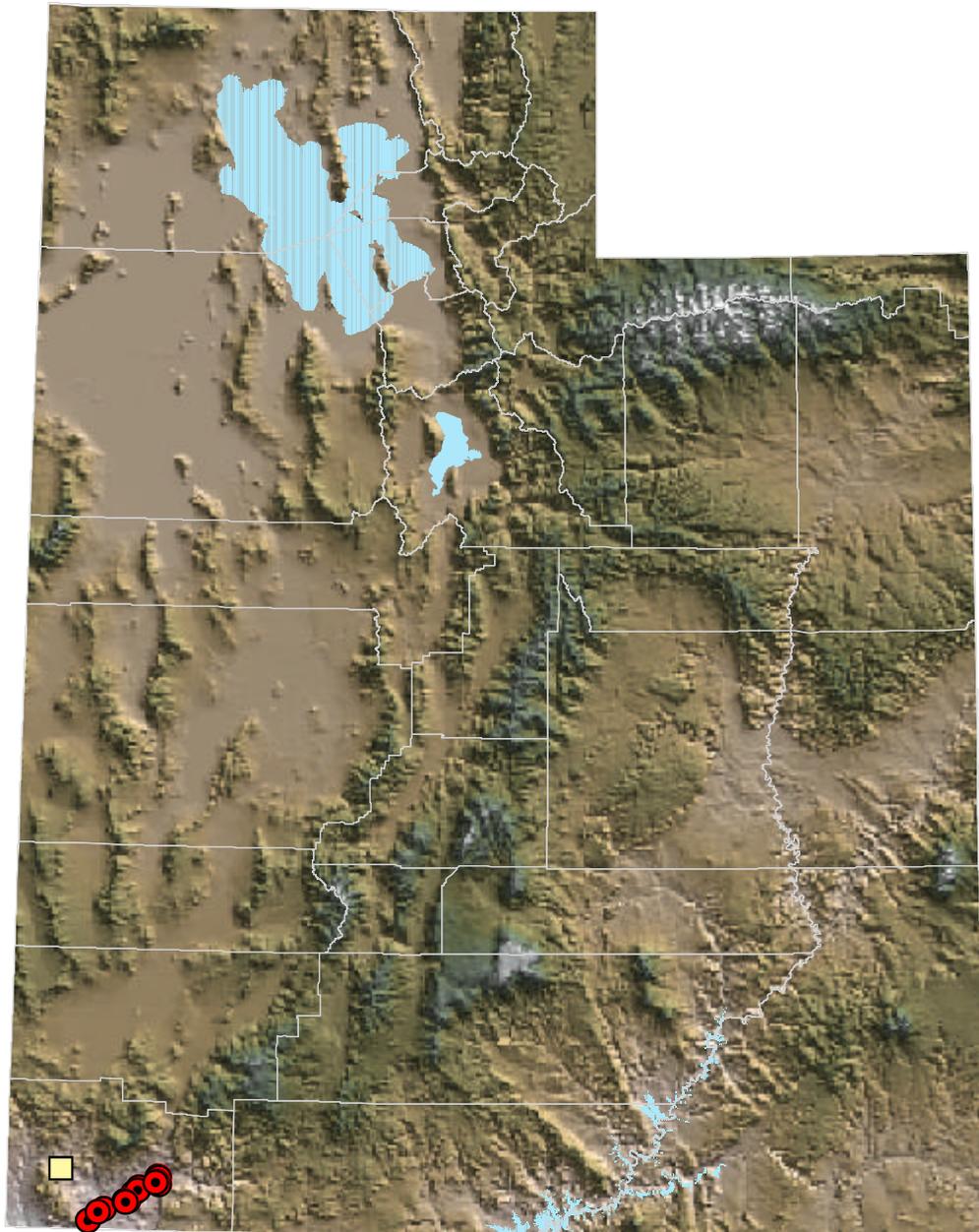


Figure 8. Distribution of the woundfin (*Plagopterus argentissimus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Colorado Pikeminnow
Ptychocheilus lucius

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Minnows (Cyprinidae)

SUBSPECIES: There are no subspecies.

OTHER NAMES: The common name formerly applied to this species was “Colorado squawfish” (Nelson et al. 1998).

CONSERVATION STATUS DESIGNATIONS

USFWS designated this species as endangered during 1967 (32 Federal Register 4001), and this fish is included in the UDWR Sensitive Species List (UDWR 2003). Recovery goals (USFWS 2002c) have been produced to guide management and conservation efforts.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is endemic to the rivers of the Colorado River system (Fig. 9). As summarized by USFWS (2002c), the species is distributed in large mainstem rivers and in the lower reaches of major tributaries. In the Green River drainage, the mainstem is occupied from the confluence with the Colorado River upstream through Dinosaur National Monument. This population also occupies the White River to the Colorado state line, the lower 143 km of the Price River, and the lower 10 km of the Duchesne River. One of the 2 major breeding sites associated with the Green River population occurs in Utah (and the other is in Colorado). The Colorado River population is found in the mainstem from the Lake Powell inflow into Colorado and also the lower 2 km of the Dolores River; the 2 spawning sites associated with the Colorado River population are both in Colorado. The San Juan River population occupies the main stem above the Lake Powell inflow to the Colorado state line no spawning sites have been located in the San Juan River, although juvenile fish are sometimes found.

Adults often occupy deep-water, low velocity eddies and pools and flooded habitats created during high flows during the spring. In the Green River, spawning occurs in canyon-bound reaches over cobble substrate (Stanger 1983, USFWS 2002c); free passage of adults to spawning beds is essential. Larvae drift downstream and develop in warm and relatively deep in-channel backwater pools; juvenile fish may spend up to 4 years in or near these habitats.

The size of Green River population has been estimated to be 6,000 to 8,000 adults (including the portion of the population occurring in the Yampa River in Colorado). The Colorado River population comprises an estimated 600 to 900 adults (including fish in Colorado). The small San Juan River population may be no larger than 50 adults (USFWS 2002c). Decline of populations accompanied damming of rivers throughout the Colorado River drainage and probably continued through the 1980s. Overall, populations appear to have at least stabilized during the 1990s, and perhaps to have

increased (USFWS 2002c). The San Juan River population, however, is in danger of being lost considering its small size and vulnerability to environmental, genetic, or demographic perturbations.

The numerous threats to this species are derived primarily from the fundamental ecological changes that have followed the damming of major rivers and tributaries in the Colorado River drainage. Although the threats from additional dam construction is relatively low, populations continue to be impacted by altered habitats. Changes in sediment deposition patterns, flow, and temperature caused by dams have resulted in loss and alteration of aquatic habitats and have favored non-native competitors and predators. Small population sizes resulting from population decline and fragmentation may have implications for the long-term genetic diversity of populations; this is of particular concern for the San Juan River population. Construction of dams may also have interrupted spawning migrations.

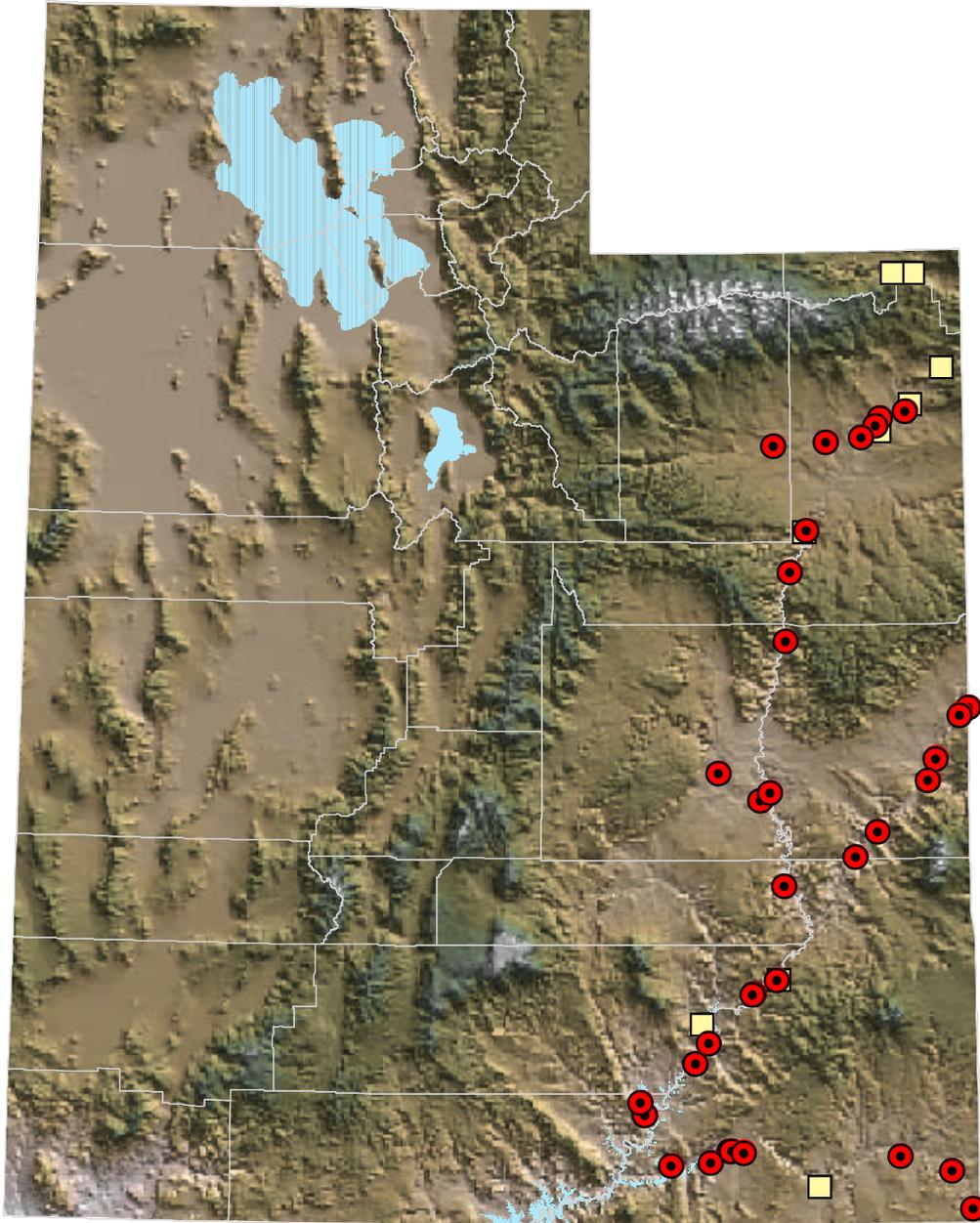


Figure 9. Distribution of the Colorado pikeminnow (*Ptychocheilus lucius*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Desert Sucker
Catostomus clarki

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Catfish and Suckers (Catostomidae)

SUBSPECIES: There are no subspecies.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

In Utah this species is limited to the Virgin River system in Washington County and western Kane County, occurring in both the mainstem and tributaries (Fig. 10). Lee et al. (1980) summarized habitat information for this species as: "... small to moderately large streams with pool-riffle development, occupies riffle areas when small in size. Large adults in pools during day, moving to riffles and rapids at night in periods of high turbidity...." Sigler and Sigler (1987) noted that the "range of habitat...is highly varied."

Sigler and Sigler (1987) said that it "is not abundant over any of its limited range throughout the lower Colorado River basin." No estimates of abundance have been documented, however, and population trend is unknown. The principal threats to this species are dewatering of the Virgin River system, pollution, and introductions of nonnative fishes. The establishment of nonnative congeners, e.g., the Utah sucker (*Catostomus ardens*), is of particular importance considering the potential for the loss of populations through genetic introgression (Sigler and Sigler 1987).

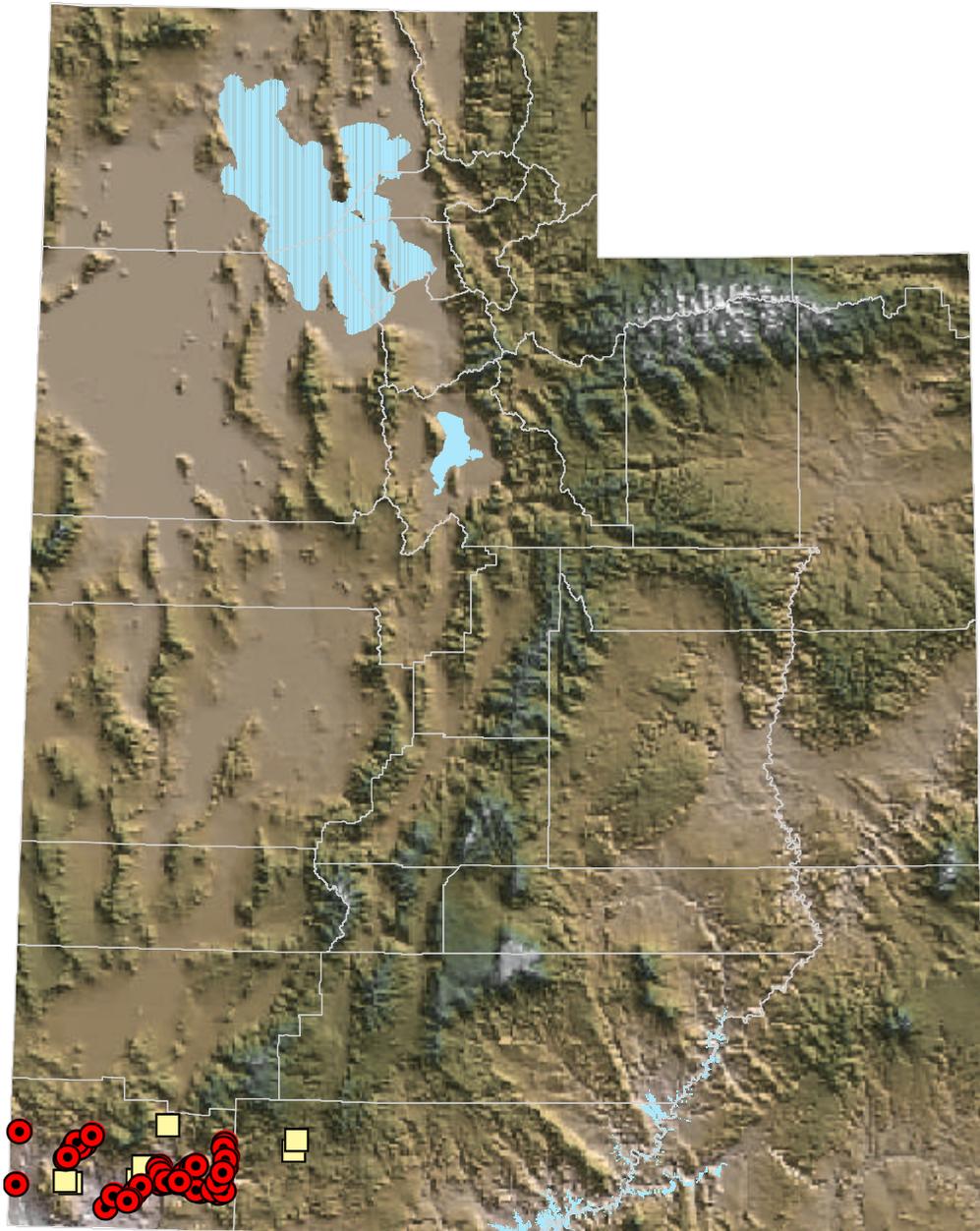


Figure 10. Distribution of the desert sucker (*Catostomus clarki*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Bluehead Sucker
Catostomus discobolus

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Catfish and Suckers (Catostomidae)

SUBSPECIES: The subspecies that occurs in Utah is *Catostomus discobolus discobolus*.

OTHER NAMES: Sigler and Miller (1963) referred to this species in Utah as *Pantosteus delphinus* and as *P. virescens*, which was formerly considered to be a distinct species. *P. virescens* was known as the “green sucker.”

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the Colorado River, Weber River, and Bear River drainages (Fig. 11), inhabiting a variety of habitats from turbid, low elevation rivers to clear mountain streams. The occupied range in the Upper Colorado River Basin has declined by approximately 55% from the historical extent (Bezzarides and Bestgen 2002). The status of populations in the Bonneville Basin are largely unknown, but a small population persists in the Weber River (P. Thompson and B. Nadalski, UDWR, 2003 pers. comm.)

Range-wide habitat loss and alteration is believed to be the primary cause of population declines. In mainstem reaches of the Colorado River basin, habitat has been grossly altered by damming and associated changes in patterns of flow, sediment transport, and water temperature. These conditions have allowed nonnative fish populations to flourish, and many of these are important predators and competitors (Bezzarides and Bestgen 2002). In headwater portions of tributary streams and in the Bonneville Basin, populations are also threatened by habitat degradation and loss arising from water withdrawal, stream channelization, and impoundments.

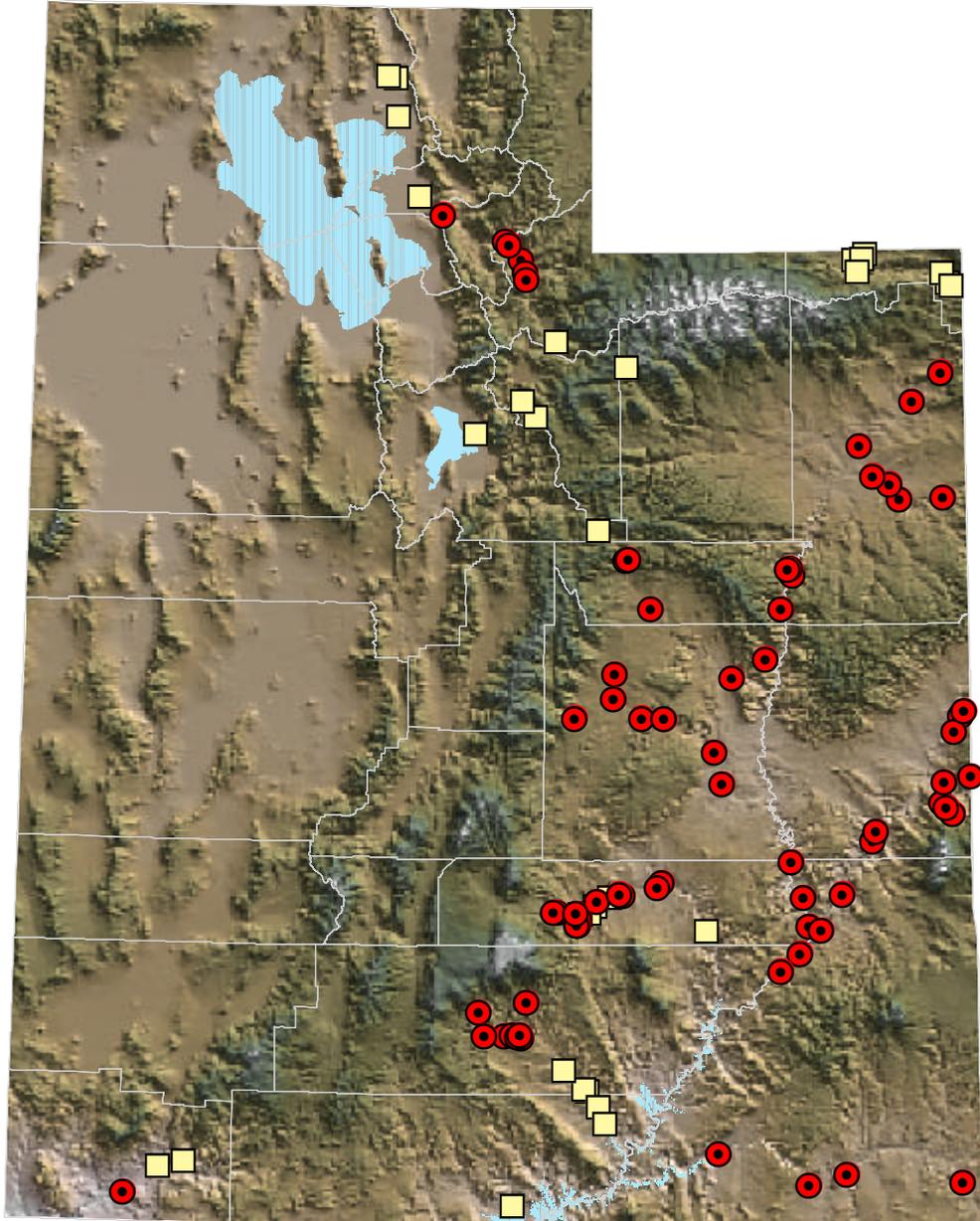


Figure 11. Distribution of the bluehead sucker (*Catostomus discobolus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Flannelmouth Sucker
Catostomus latipinnis

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)
FAMILY: Catfish and Suckers (Catostomidae)
SUBSPECIES: No subspecies are recognized.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is found in most of the main-stem Colorado River drainage and larger tributaries: the upper Colorado, San Juan, Virgin, Escalante, Fremont (Dirty Devil), Green, San Rafael, Price, and Duchesne rivers (Fig. 12) (Bezzarides and Bestgen 2002). Specimens collected in the Provo River undoubtedly represent an introduced population, and the lack of recent data suggest that this population has not persisted. Bezzarides and Bestgen (2002) estimated that the extent of occupied habitat has declined by 50% from historical levels. Although populations appear to be declining, the species is sometimes locally abundant. McAda (1977) stated: "The flannelmouth sucker is the most abundant large fish found in the upper Colorado River basin"

Sigler and Miller (1963) wrote: "Adults typically live in pools of streams and large rivers. These may vary from about six to 150 feet in average width, usually have little or no vegetation, are clear to murky, and have flows of up to 1800 cubic feet per second Depths of capture have varied from one to six feet with water depths up to 20 feet. The bottom is varied but often consists of rocks, gravel, or mud. Young fish live in moderately swift to slow marginal waters of swiftly-flowing streams, in much shallower water than do adults." McAda (1977), who studied this species in the upper Colorado River basin, reported: "Adult flannelmouth suckers were collected from all habitats (riffles, runs and pools), at all stations during the present investigation, but were most abundant in pools"

Flow and other habitat alterations and habitat loss resulting from damming appear to be the main threats to this species in Utah. Predation by introduced sport fishes also represents a threat to the persistence of flannelmouth sucker populations. Also, this species is known to hybridize with other suckers such as the razorback sucker, *Xyrauchen texanus*, (Hubbs and Miller 1953) and the introduced white sucker, *Catostomus commersoni*.

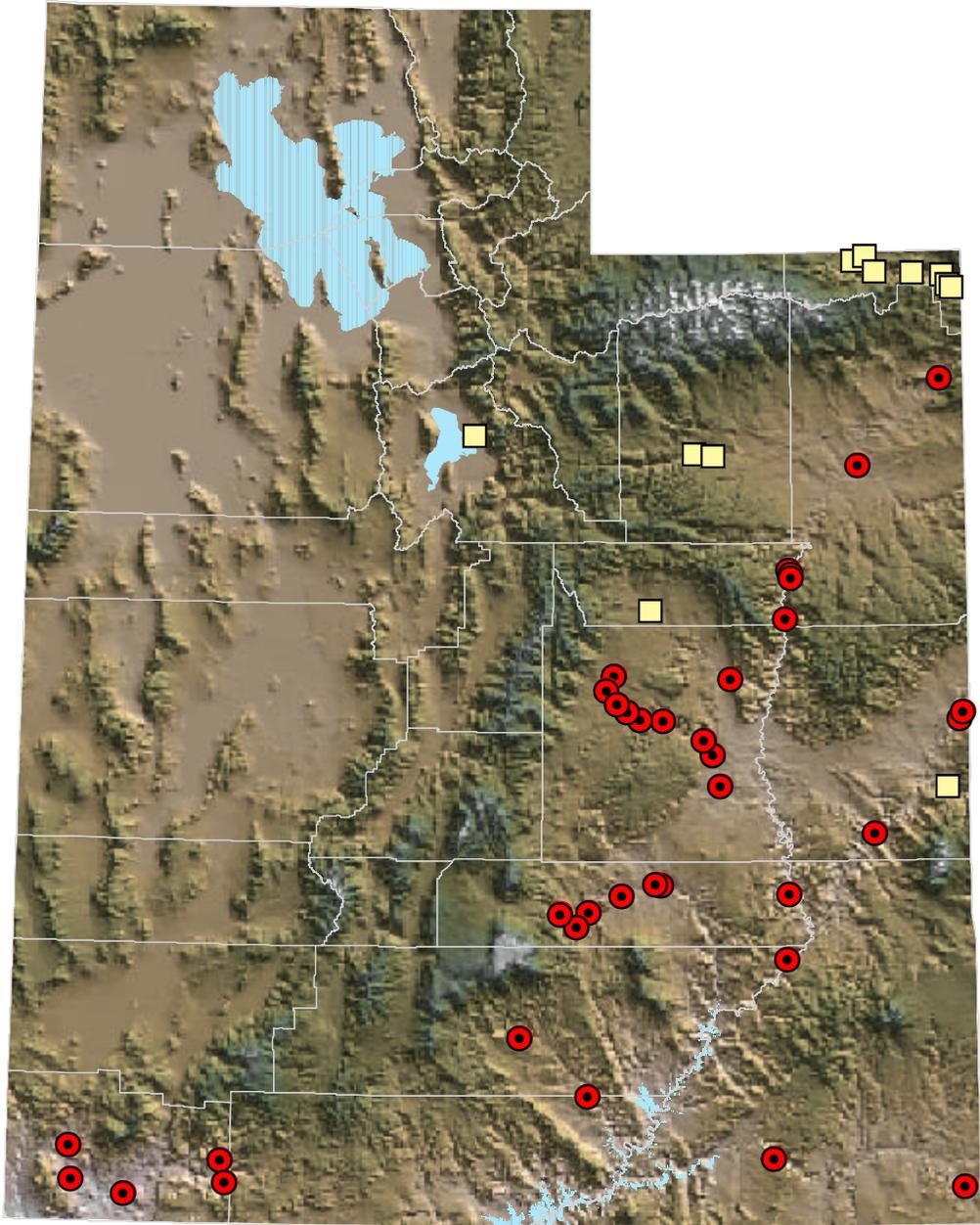


Figure 12. Distribution of the flannelmouth sucker (*Catostomus latipinnis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

June Sucker
Chasmistes liorus

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Catfish and Suckers (Catostomidae)

SUBSPECIES: Miller and Smith (1981) believed that *C. liorus* had hybridized with *C. ardens* during the 1930s, producing a fertile intergeneric hybrid, to which they applied a new subspecific name, *C. liorus mictus*. The naming of hybrids violates rules of zoological nomenclature, and the name *C. liorus mictus* should not be considered valid. If the extant population is indeed a hybrid swarm, genetically pure individuals (e.g., the pre-1935 form) should be referred to as *Chasmistes liorus*, and hybrids should be called *Chasmistes liorus* x *Catostomus ardens*.

OTHER NAMES: During the late 1800s, two species of *Chasmistes* were thought to occur in Utah Lake: *C. liorus* and *C. fecundus* (e.g., Jordan 1878), both coexisting with the Utah sucker (*Catostomus ardens*). Miller and Smith (1981), however, proposed that *C. fecundus* was a product of hybridization between *C. liorus* and *C. ardens*. Most authorities have accepted this supposition (but see Cook 2001).

CONSERVATION STATUS DESIGNATIONS

This species is included in the UDWR Sensitive Species List (UDWR 2003) and was listed as endangered under the Endangered Species Act by USFWS during 1986 (51 Federal Register 10851-10857).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is endemic to Utah Lake (Fig. 13). Formerly spawning occurred in major tributaries of the lake. Currently, spawning is known to occur only in the Provo River. Three introduced populations exist, one each in Box Elder County, Weber County, and Salt Lake County. Although this species historically was abundant in Utah Lake, the population declined dramatically when the lake level dropped in association with severe drought conditions during the early 1930s. Populations recovered only slightly. Heckman et al. (1981) considered the species to be on the verge of extinction, and the size of the population currently remains very low.

Degraded habitat is a primary threat to the persistence of this population. The lake habitat has been dramatically altered from historical conditions by, e.g., agricultural and residential uses, pollution, and recreational use. Importantly, the fish fauna of the lake has changed dramatically (see summary in Heckman et al. 1981) and is now dominated by a variety of nonnative species. Spawning habitat, too, may also be degraded from historical conditions, in part as a result of flow management and water withdrawal.

Of primary importance is hybridization with the Utah sucker (*C. ardens*). As noted above, Miller and Smith (1981) considered the population of June suckers occurring in the lake after the 1930s to be of hybrid origin; suckers apparently did not morphologically match *C. liorus* as it existed before the drought. Cook (2001)

challenged the conclusions of Miller and Smith (1981), arguing that if changes in morphological characters had indeed been detected, itself a point of contention with Cook, the changes may have had an ontogenetic or ecological origin; in other words, hybridization was not the only explanation for the observed morphological changes. Preliminary genetic analysis does, however, indicate some level of introgression between *C. liorus* and *C. ardens* (Y. Converse, USFWS, pers. comm.), but conclusions regarding the degree and pattern of hybridization are contingent on additional genetic investigations. Therefore, the question of whether the species persists as it has historically or whether the original genotype has been lost through hybridization is currently unresolved.

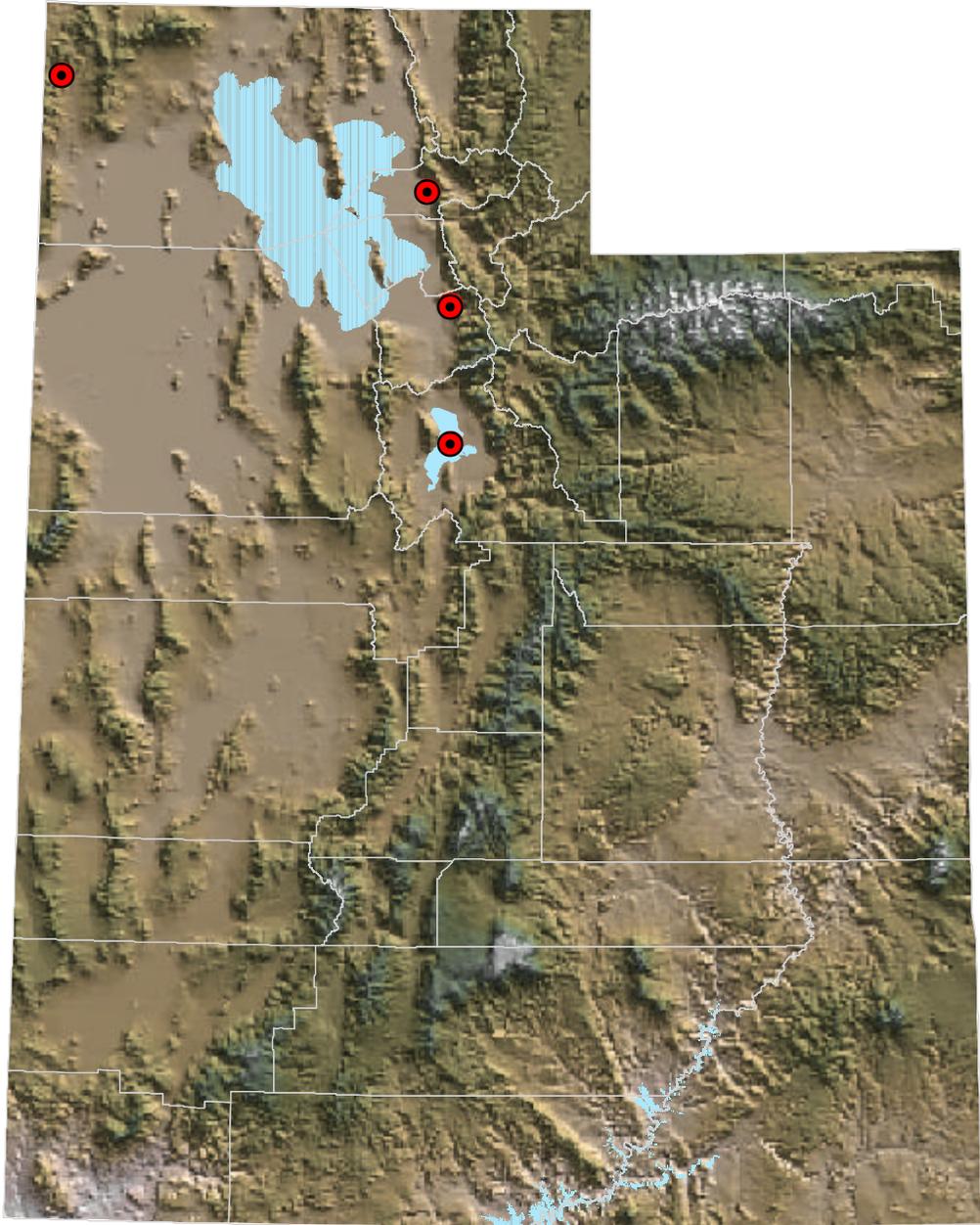


Figure 13. Distribution of the June sucker (*Chasmistes liorus*).

Razorback Sucker
Xyrauchen texanus

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Catfish and Suckers (Catostomidae)

SUBSPECIES: There are no subspecies.

CONSERVATION STATUS DESIGNATIONS

USFWS listed this species as endangered under the Endangered Species Act during 1991 (56 Federal Register 54957-54967). Recovery goals (USFWS 2002d) have been produced to guide management and conservation efforts. This species is included in the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Current distributional patterns are difficult to interpret, primarily because the species is now rarely encountered. The razorback sucker is believed to have historically occupied much of the Green, Colorado, and San Juan Rivers, as well as the lower portions of large tributaries, such as the White and Duchesne rivers. Although individuals may range through much of the Green and Colorado rivers, the extent of the population in the Green River was reduced by inundation of Flaming Gorge and cold tailwaters below the reservoir. The population occurring in the San Juan River is presumed to have been extirpated. Habitat fragmentation has affected regional distributional patterns and has probably altered movements. USFWS (2002d) treated subpopulations occurring in each of 3 major rivers—the Green, Colorado, and San Juan rivers—as separate units. Prior to the establishment of Lake Powell these populations were interconnected, comprising a single, large population.

A variety of habitats are used, and habitat preference may vary seasonally. Pools, slow runs, backwaters, and flooded off-channel habitats are notably important for adults. Water temperature between 22° and 25° C appear to be preferred, although spawning may take place in substantially colder water (USFWS 2002d). Spawning is thought to occur over coarse sediments, gravel, and cobble substrates. Juvenile habitat use is poorly understood, but shallow, low-velocity habitats are probably important.

Populations consist of few, scattered adults. The subpopulation occupying the middle Green River (i.e., primarily in Uintah County) was estimated to contain about 100 adults during the late 1990s (USFWS 2002d). Scattered individuals may also occur in the lower reaches of the White and Duchesne rivers. The Colorado River population comprises few adults; no sub-adults have been found since the 1960s. The San Juan River has been lost, although some captive-bred fish have been stocked. Population declines have been dramatic. The middle Green River population was estimated to comprise only 1,000 adults during the late 1980s, but declined to only about 100 adults by 2002 (Bestgen et al. 2002). Few adults are thought to persist in the Colorado River, and the San Juan River population has been lost (USFWS 2002d).

The numerous threats to this species are derived primarily from the fundamental ecological changes that have followed the damming of major rivers and tributaries in the Colorado River drainage. Changes in sediment deposition, flow, and temperature patterns caused by dams have resulted in loss and alteration of aquatic habitats, creating conditions that have favored non-native competitors and predators. High predation rates of sub-adults has essentially eliminated the recruitment of juveniles into the adult population. Increased hybridization with congeners (both native and introduced) may be a symptom of changes in habitat and movement patterns. Small population sizes resulting from population decline and fragmentation may have implications for the long-term genetic diversity of populations.

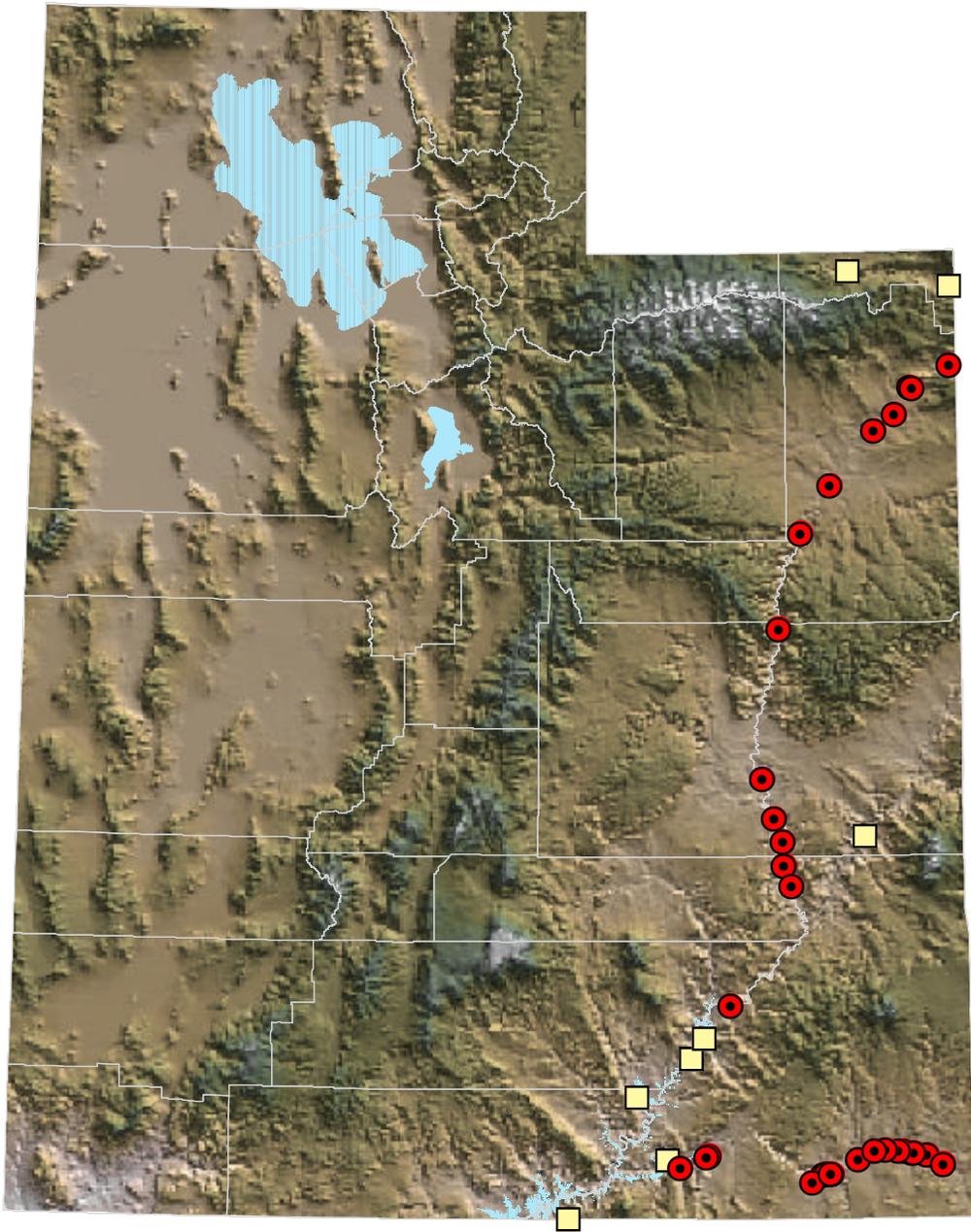


Figure 14. Distribution of the razorback sucker (*Xyrauchen texanus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Yellowstone Cutthroat Trout
Oncorhynchus clarki bouvieri

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Trout, Salmon, and Whitefish (Salmonidae)

SUBSPECIES: The taxon *bouvieri* is a subspecies of the cutthroat trout, *Oncorhynchus clarki*.

OTHER NAMES: Cutthroat trout were formerly placed in the genus *Salmo* (e.g., Sigler and Miller 1963, Hickman and Duff 1978).

CONSERVATION STATUS DESIGNATIONS

This species is included in the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This trout is native to the Snake River and its tributaries. Although the subspecies has been widely introduced in Utah, native populations occur in the state only in Goose Creek and tributaries of the Raft River in Box Elder County. Thompson (2002) found populations to occupy 55.3 stream km, with the largest continuously occupied reach being 14.3 stream km.

In almost half of the occupied reaches, nonnative fish species were present during 2001 (Thompson 2002). Among these were rainbow trout (*O. mykiss*), with which the cutthroat trout populations had hybridized in some areas. Introduced populations of brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*) were also sympatric with the cutthroat populations in some reaches, representing potential competitors and predators, respectively. The presence of these species could jeopardize the persistence of cutthroat populations. Thompson (2002) also noted the presence of stream diversions acting as barriers to movements. Habitat fragmentation as a result of these barriers has implications for the maintenance of genetic diversity in isolated small populations by restricting gene flow. Barriers also eliminate the potential for recolonizing isolated reaches. Paradoxically, dams may also prevent colonization of headwater streams by nonnative trout found in lower reaches of some streams.

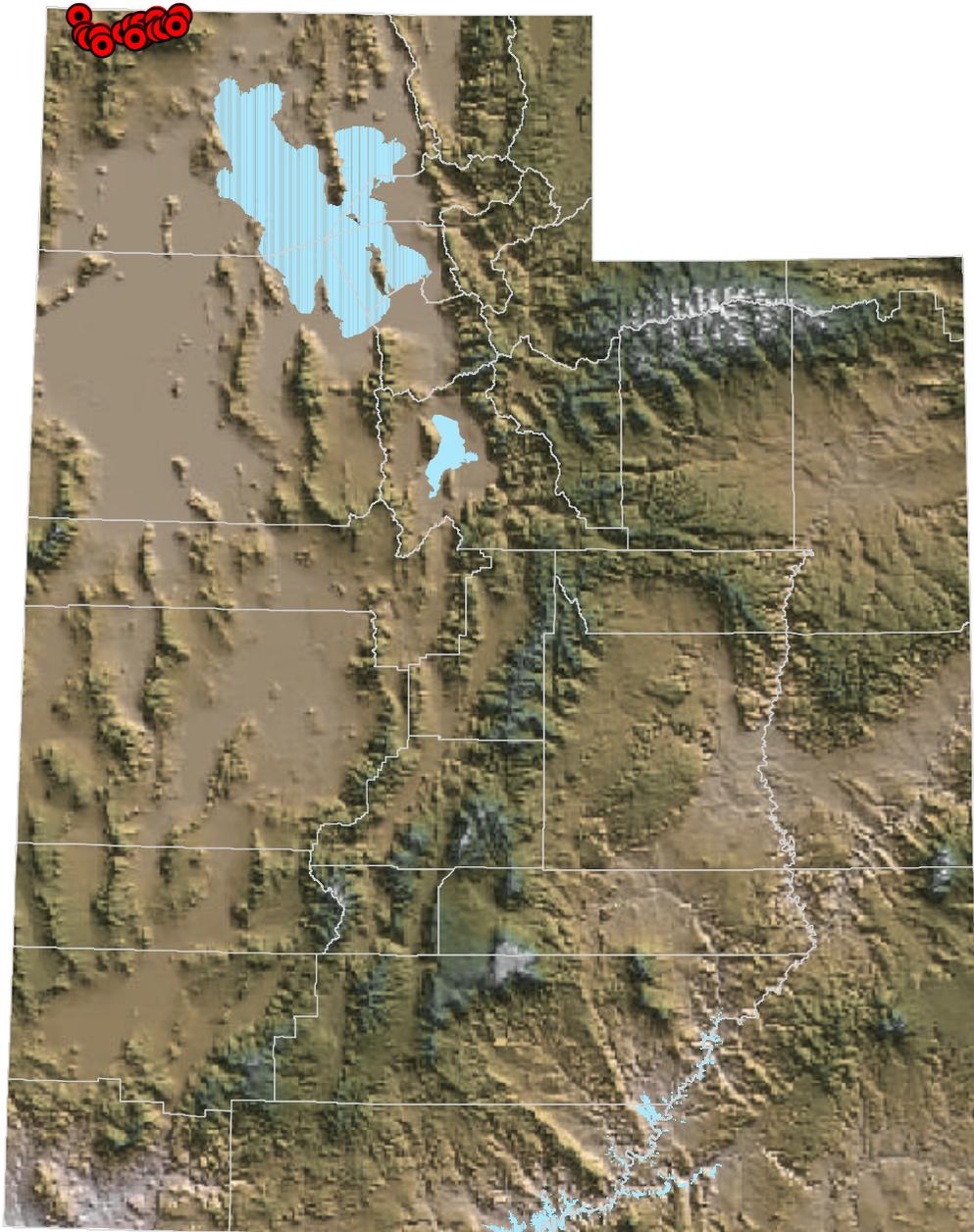


Figure 15. Distribution of native populations of the Yellowstone cutthroat trout (*Oncorhynchus clarki bowvieri*). Introduced populations are not included.

Lahonton Cutthroat Trout
Oncorhynchus clarki henshawi

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Trout, Salmon, and Whitefish (Salmonidae)

SUBSPECIES: The taxon *henshawi* is a subspecies of the cutthroat trout, *Oncorhynchus clarki*.

OTHER NAMES: Cutthroat trout were formerly placed in the genus *Salmo* (e.g., Sigler and Miller 1963, Hickman and Duff 1978).

CONSERVATION STATUS DESIGNATIONS

This subspecies was listed by the USFWS as endangered in 1970 (35 Federal Register 13520) and later (40 Federal Register 29864) reclassified as threatened. It is included in the UDWR Sensitive Species List (UDWR 2003). A recovery plan has been produced to provide guidance for conservation actions (USFWS 1994b).

DISTRIBUTION AND ABUNDANCE IN UTAH

This subspecies is not native to Utah, being formerly restricted to the western Great Basin of Nevada and California. It is believed that fish from Pyramid Lake, Nevada, were stocked in Utah during 1910 or perhaps later (Hickman 1978, Hickman and Duff 1978, USFWS 1994b). There are now two reproducing populations, one from the original stocking, and the other established by transplantation from the first, both in small creeks in the Pilot Peak Range, Box Elder County (Schmidt et al. 1995). Some of the fish from these populations are stocked in small ponds and raised as brood stock for recovery efforts within the native range of the subspecies (Schmidt et al. 1995). An attempted introduction in Camp Creek Reservoir failed (fide P. Thompson, UDWR). Because of the subsequent extinction of the Pyramid Lake population and the extensive interbreeding that has taken place elsewhere (Hickman and Duff 1978), the Utah population may be the only extant representative of the pure genotype (Schmidt et al. 1995).

Fish are common within the two streams, but the total length of occupied habitat is small, approximately 2.25 miles (fide Paul Thompson, UDWR). The populations are apparently stable, USFWS (1994b) suggested the population size to be 675 fish, which would suggest that the genetic effects of small population size could affect the viability of these populations. Because populations are confined to just 2 small, hydrologically isolated streams, stochastic and catastrophic events are of high conservational concern, as well.

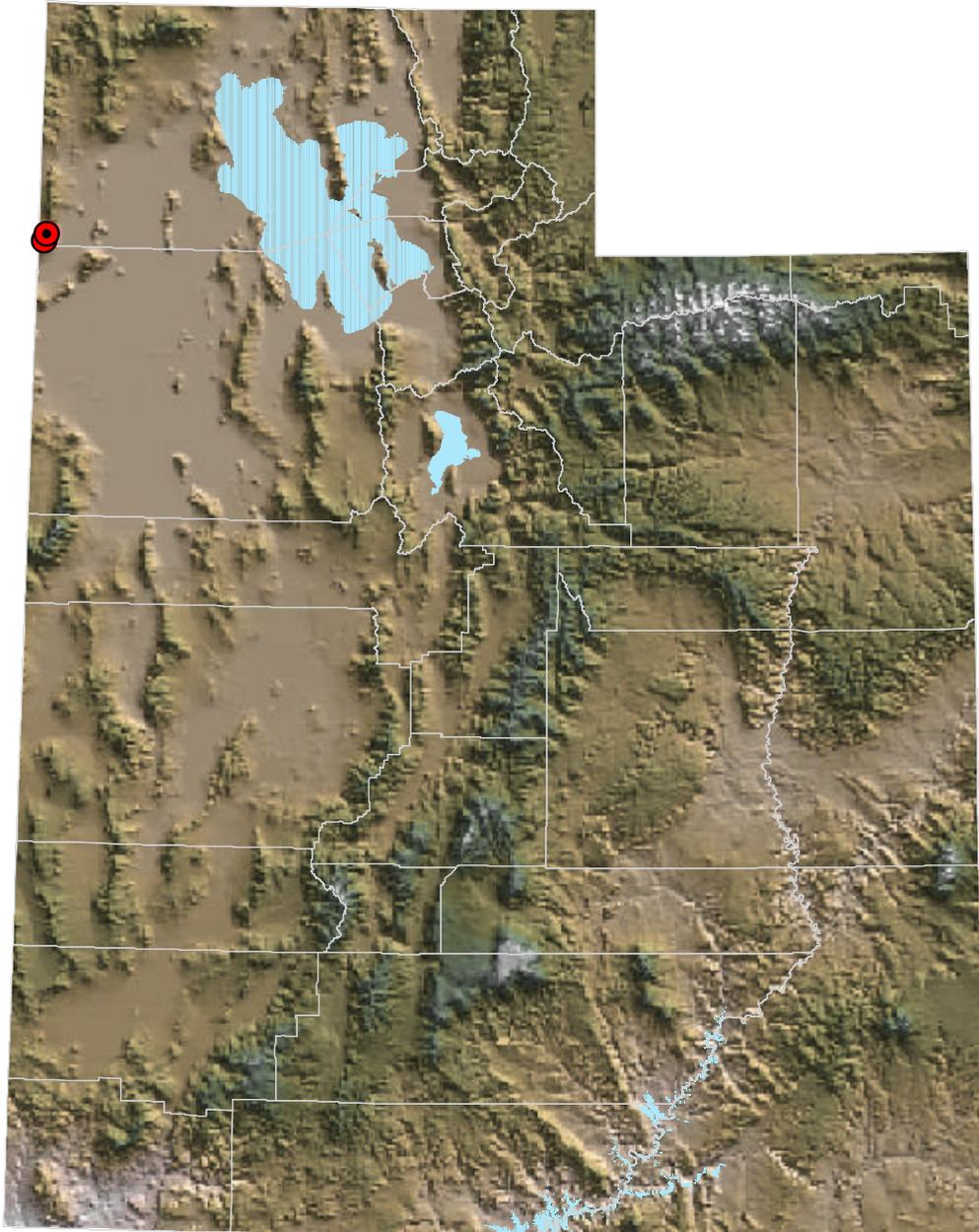


Figure 16. Distribution of the Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*). Locations of non-breeding trout (e.g., brood ponds) are not represented.

Bonneville Cutthroat Trout
Oncorhynchus clarki utah

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Trout, Salmon, and Whitefish (Salmonidae)

SUBSPECIES: The Bonneville cutthroat trout is a subspecies of *Oncorhynchus clarki*. Several geographic entities within the subspecies show molecular and morphological differentiation such that 4 distinct units have been recognized for conservational purposes: the Southern Bonneville, Main Bonneville, Snake Valley, and Bear River populations (Lentsch et al. 2000).

OTHER NAMES: Cutthroat trout were formerly placed in the genus *Salmo* (e.g., Sigler and Miller 1963, Hickman and Duff 1978).

CONSERVATION STATUS DESIGNATIONS

This species is included in the UDWR Sensitive Species List (UDWR 2003) as a Conservation Species. Recovery strategies are discussed in a multi-agency conservation agreement (Lentsch et al. 2000).

DISTRIBUTION AND ABUNDANCE IN UTAH

This subspecies occurs in streams and lakes of the Bonneville Basin and a limited portion of the Virgin River Drainage. Most populations are found in the headwater streams and high-elevation river reaches of drainages entering the Basin at its east and southeast edge, but several small populations occur in perennial streams in the Deep Creek Mountains along the west boundary of the Basin (Holden et al. 1974, Hickman and Duff 1978, Behnke 1992, Schmidt et al. 1995, Sigler and Sigler 1996, Lentsch et al. 2000, USFWS 2001) and in a few headwater streams of the Virgin River drainage in the Pine Valley Mountains (USFWS 2001). Lentsch et al. (2000) estimated the total Utah population to comprise between 166,500 and 439,500 individuals.

A variety of changes to native habitats have contributed to historical declines of populations. Land use practices that alter aquatic habitat, water quality, or riparian vegetation contribute to the degradation of aquatic habitats important to this fish in Utah (Duff 1996). Overgrazing of riparian areas, timber harvest, or road building may result in sedimentation, loss of pool habitat, and unfavorable changes in water temperature. Of importance has been the fragmentation of large, interconnected metapopulations by dams, degraded stream reaches, and introduced populations of nonnative species. Some isolated cutthroat populations are small and may be subject to inbreeding. Others have been affected by hybridization with nonnative rainbow trout (*O. mykiss*) and Yellowstone cutthroat trout (*O. c. bouvieri*), resulting in genetic introgression. Nonnative populations of these and other game fishes may also threaten cutthroat populations through competitive exclusion. Whirling disease, a parasitic disease affecting most species of trout, is of increasing concern in Utah.

Because of these changes in habitat, the geographic range and number of individuals is much reduced from historical levels (USFWS 2001). However, as conservational interest in the species has increased, especially during the late 20th century, management activities have stabilized many extant populations. Captive propagation and stocking efforts have resulted in the re-establishment of some extirpated populations and the expansion of the range through stocking of isolated, formerly uninhabited lakes. Therefore, the size and range of the Utah population is currently increasing, although historical levels have not yet been attained.

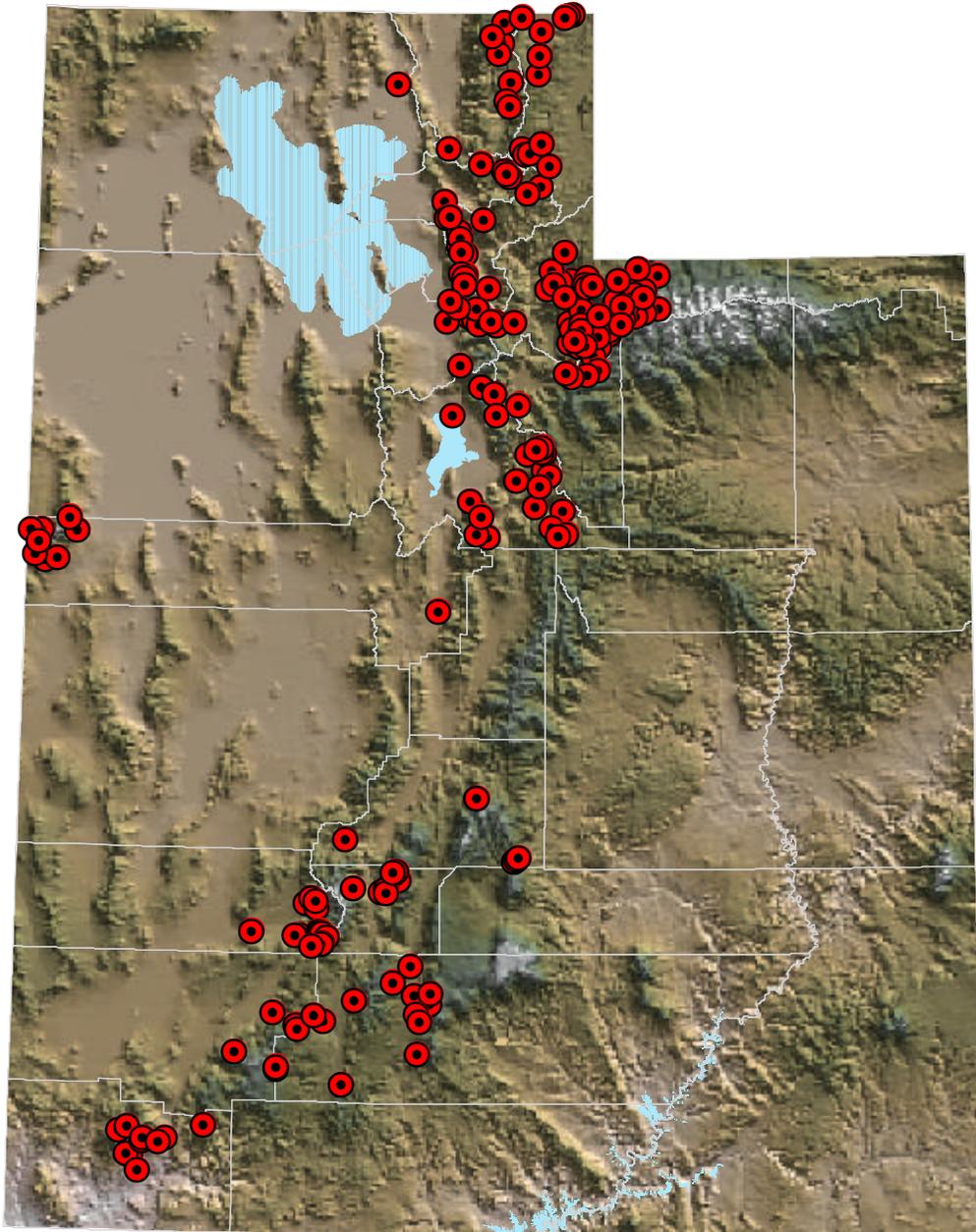


Figure 17. Distribution of the Bonneville cutthroat trout (*Oncorhynchus clarki utah*). Red circles represent Conservation and Core Conservation populations verified to be extant since 1983. Populations showing more than 10% genetic introgression with rainbow trout (*Oncorhynchus mykiss*) are not included.

Colorado River Cutthroat Trout
Oncorhynchus clarki pleuriticus

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Trout, Salmon, and Whitefish (Salmonidae)

SUBSPECIES: The Colorado River cutthroat trout is a subspecies of *Oncorhynchus clarki*, the cutthroat trout.

OTHER NAMES: Cutthroat trout were formerly placed in the genus *Salmo* (Sigler and Miller 1963).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003) as a Conservation Species. A multi-agency conservation agreement (Lentsch and Converse 1997) discusses strategies for the recovery of this species.

DISTRIBUTION AND ABUNDANCE IN UTAH

This subspecies is restricted to the upper Colorado River drainage, occurring in headwater streams and mountain lakes of the Uinta, La Sal, and Abajo mountains, the Tavaputs Plateau, and the Escalante and Fremont river drainages (Young et al. 1996, Lentsch and Converse 1997).

The current range is much reduced from the historical extent, populations having been impacted by land and water use practices such as grazing, mining, and damming, and by the introduction of nonnative game fish. These activities resulted in the loss of large amounts of formerly occupied habitat. The fragmentation of metapopulations, which affects gene flow and seasonal movements, is thought to be an especially important factor in population declines (Lentsch and Converse 1997). Another prominent threat has been hybridization with nonnative rainbow trout (*O. mykiss*) and Yellowstone cutthroat trout (*O. c. bouvieri*). Recent management and conservation actions, which have included introductions and reintroductions, have helped to minimize these threats and to stabilize populations, and overall population size is now probably increasing through these actions.

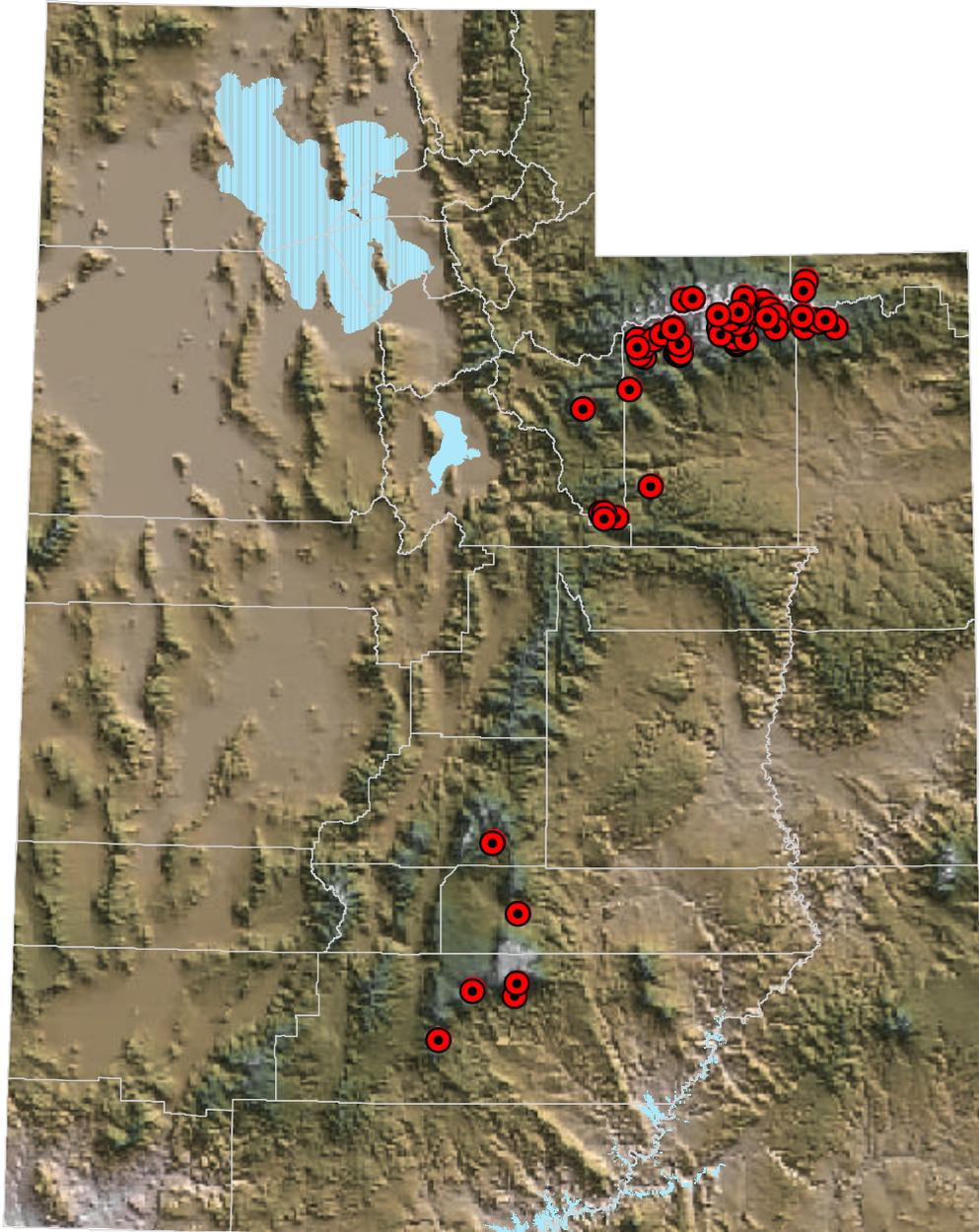


Figure 18. Distribution of the Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*). Red circles represent Conservation and Core Conservation populations verified to be extant since 1983. Populations showing more than 10% genetic introgression with rainbow trout (*Oncorhynchus mykiss*) are not included.

Bear Lake Whitefish
Prosopium abyssicola

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Trout, Salmon, and Whitefish (Salmonidae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: This species was described as a species of *Coregonus*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is endemic to Bear Lake where it is generally found in deep water, usually at depths between 50 and 100 ft. (McConnell et al. 1957), although individuals are encountered at all depths (Sigler and Miller 1963). McConnell et al. (1957) noted that stomach contents "... suggest a complete dependence on the soft mud bottom in deep water as a source of food." Simpson and Wallace (1982) stated: "The vertical distribution of the Bear Lake whitefish is generally confined to the 60-foot level and below where the water temperature is uniformly 39° F."

This species is common in Bear Lake, but apparently intermediate in abundance between its congeners *P. siltonotus* and *P. gemmifer* (Lee et al. 1980). Recreational use and development may affect water quality in Bear Lake. There is also sport fishing for this species. Predation by introduced fishes on immature stages of this species may also be a threat.

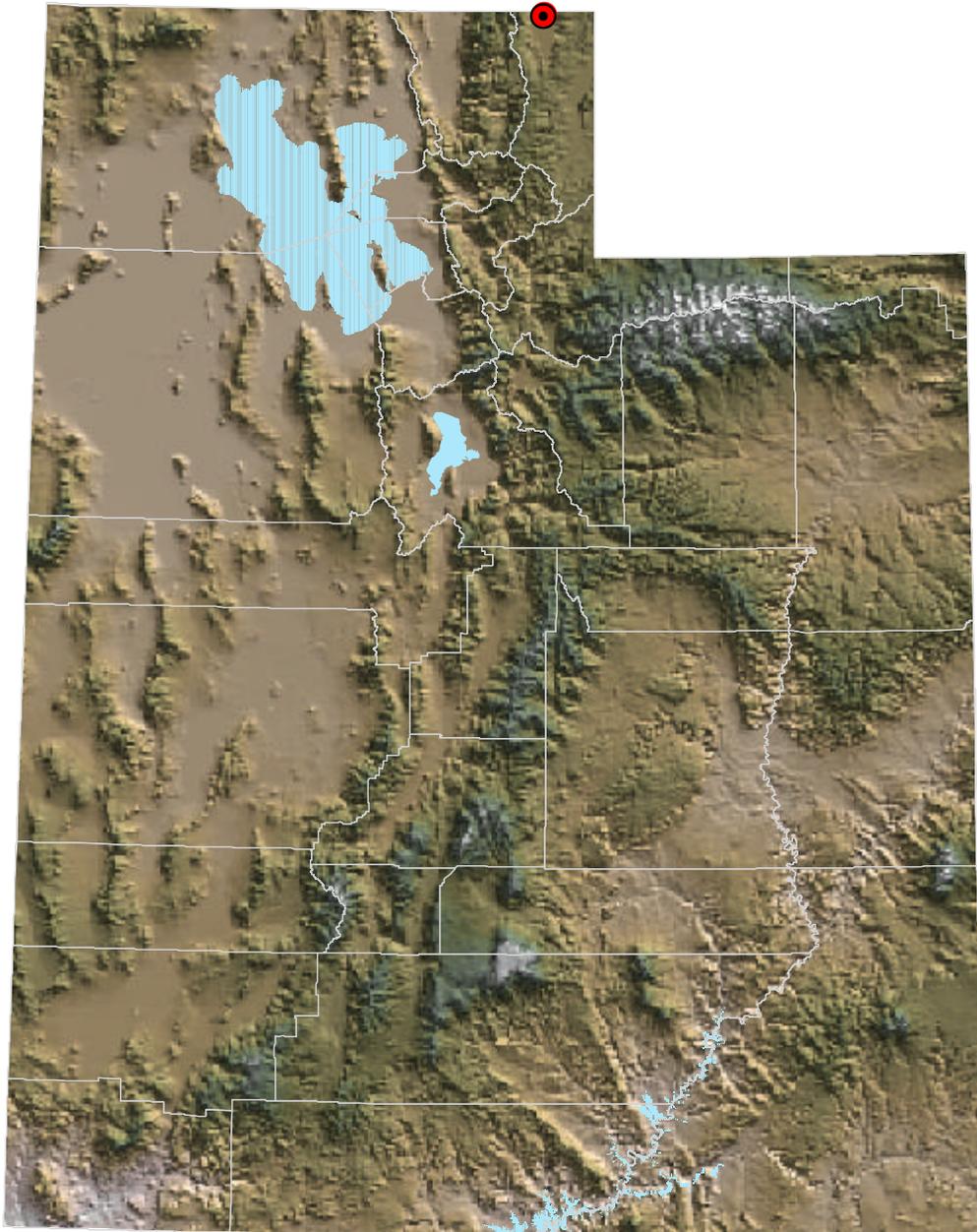


Figure 19. Location of the population of the Bear Lake whitefish (*Prosopium abyssicola*).

Bonneville Cisco
Prosopium gemmifer

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Trout, Salmon, and Whitefish (Salmonidae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: Tanner (1936) referred to this species by the name originally assigned to it, *Leucichthys gemmifer*. For many years the species was known as *Prosopium gemmiferum* (e.g., Sigler and Miller 1963, Lee et al. 1980). The common name “peaknose cisco” was applied historically (e.g., Perry 1943).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is endemic to Bear Lake on the Utah-Idaho border. An attempt to establish a population in Flaming Gorge Reservoir was apparently unsuccessful (Sigler and Sigler 1987). In Bear Lake, highest population densities occur where temperatures are below 59°F. During warm periods, a suitable temperature is found in the upper part of the hypolimnion rather than the deeper, colder regions, but in other seasons fish are distributed throughout all depths (Perry 1943). McConnell et al. (1957) presented gill-net data that showed this species to be captured at all depths, though most frequently at depths of 100 to 200 feet.

This is the most abundant fish species in Bear Lake, its population numbering in the hundreds of thousands (Sigler and Sigler 1987). Because the population occurs in a single water body, it is vulnerable to catastrophic events affecting aquatic habitat, as well as long-term degradation of water and habitat quality arising. Predation by introduced fishes may be a threat to this species, but declines arising from introductions have not been detected. Legal harvest is allowed, using dip nets on spawning concentrations in shallow water, but harvest is regulated to maintain a stable population.

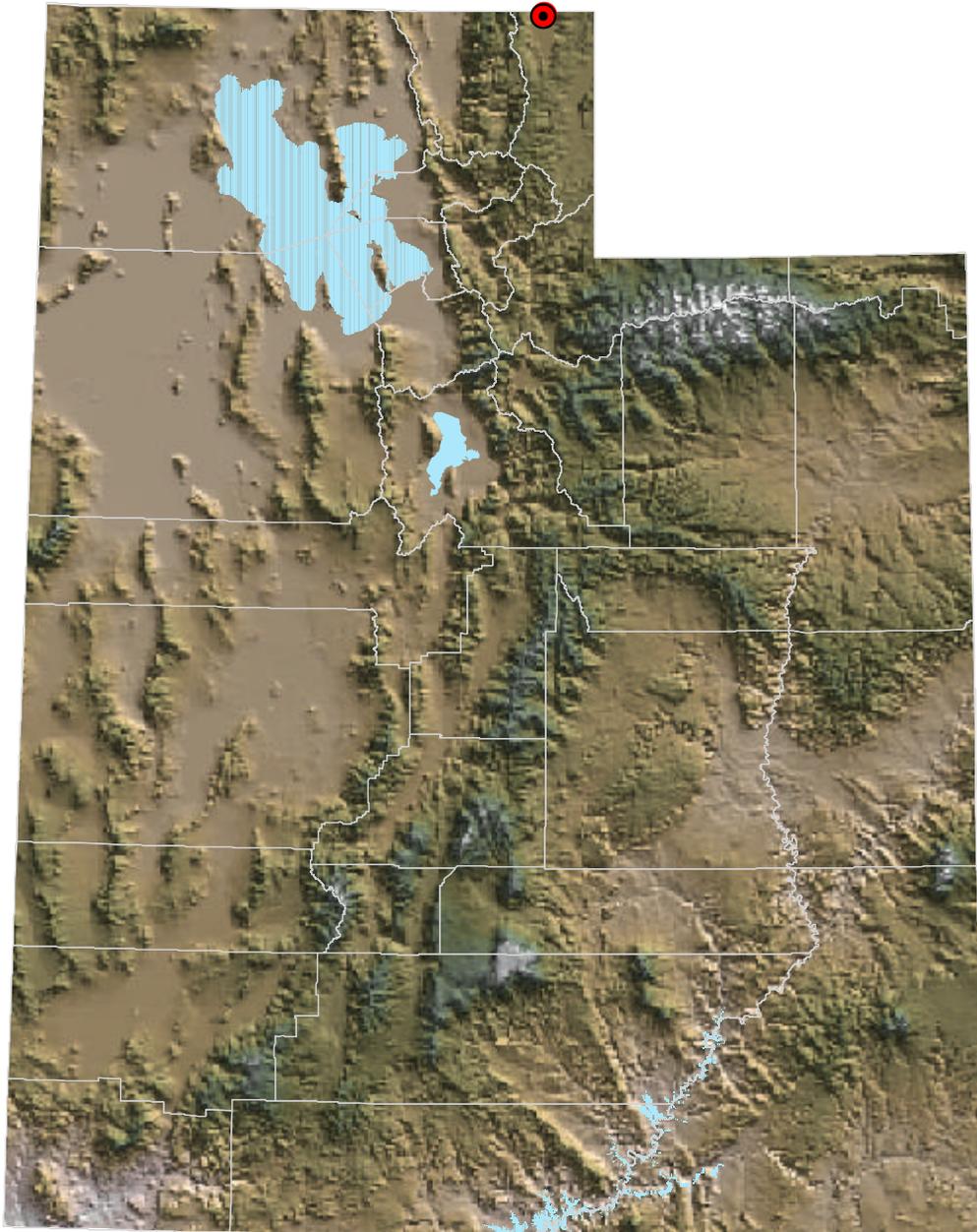


Figure 20. Location of the population of the Bonneville cisco (*Prosopium gemmifer*).

Bonneville Whitefish
Prosopium spilonotus

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Trout, Salmon, and Whitefish (Salmonidae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: An unpublished study (White 1974), suggested that *Prosopium spilonotus* represents two cryptic species, differing in size, growth rate, spawning times and temperatures, food habits, and water depth occupied. Formal description of a new species (the suggested name being *P. nannomaculatum*, the spotted whitefish) has not been pursued, and strong support for its recognition is lacking.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is endemic to Bear Lake (Sigler and Miller 1963, Sigler and Sigler 1987, 1996). McConnell et al. (1957) judged from stomach contents of this species that it exploits a wider variety of habitats and depths than its congeners in Bear Lake. They found that young tended to inhabit deep water, being most commonly captured at depths from 40 to 100 ft. They found adults in shallow water, sometimes near stream mouths. Spawning usually occurs over rocky shallows, but may occur over sandy points when rocky habitats are exposed during periods of low water.

This species is abundant in Bear Lake (Sigler and Sigler 1996). Because the population occurs in a single water body, it is vulnerable to catastrophic events affecting aquatic habitat, as well as long-term degradation of water and habitat quality arising. Predation by introduced fishes may be a threat to this species, but declines arising from introductions have not been detected. Legal harvest is allowed, but harvest is regulated to maintain a stable population.

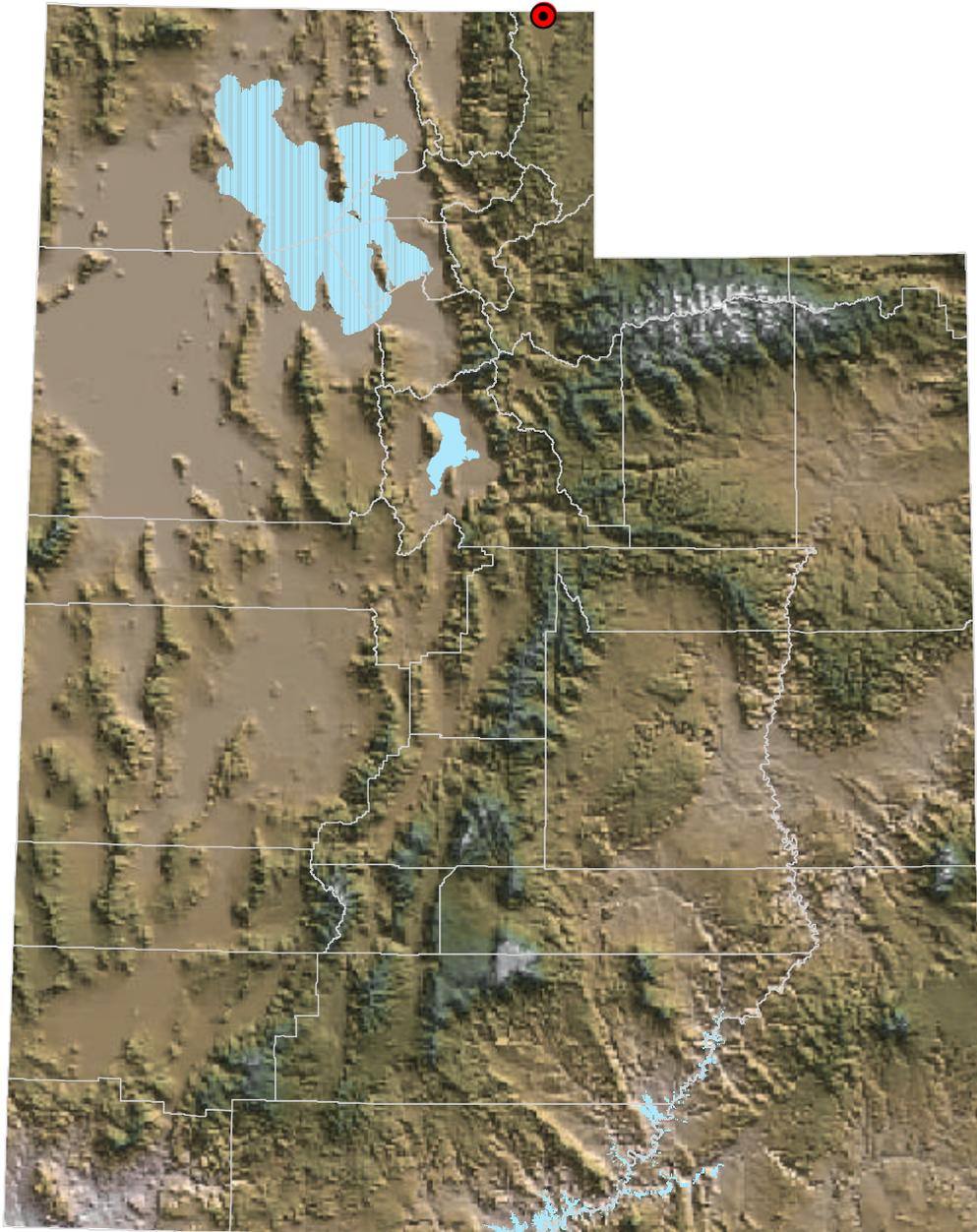


Figure 21. Location of the population of the Bonneville whitefish (*Prosopium spilonotus*).

Paiute Sculpin
Cottus beldingi

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Sculpins (Cottidae)

SUBSPECIES: No subspecies are recognized.

CONSERVATION STATUS DESIGNATIONS

This species is not currently included on lists of species of conservational concern by any government agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations have been documented in the Sevier River in Piute County, Thistle Creek in Utah County (although the validity of these records is unconfirmed), and in the Weber, Bear, Logan, and Blacksmith Fork rivers. Typically populations occur in clear, cold streams with rocky substrates (Simpson and Wallace 1982). Sigler and Sigler (1987) said: "The Paiute sculpin prefers bottom habitat of rubble and gravel, although it is not unusual to find it living on other substrates. Its typical stream habitat is rocky riffle sections with clear, cold water, where it is almost always associated with trout."

Difficulties in distinguishing this species from the mottled sculpin (*C. bairdi*) has limited the amount of information collected for this species (fide P. Thompson, UDWR). The abundance of this species is unknown, as are population trends. Threats to populations are not specifically documented, but some of the occupied water bodies are in areas of heavy agricultural and residential development where altered aquatic habitats and degraded water quality from pollution may pose threats.

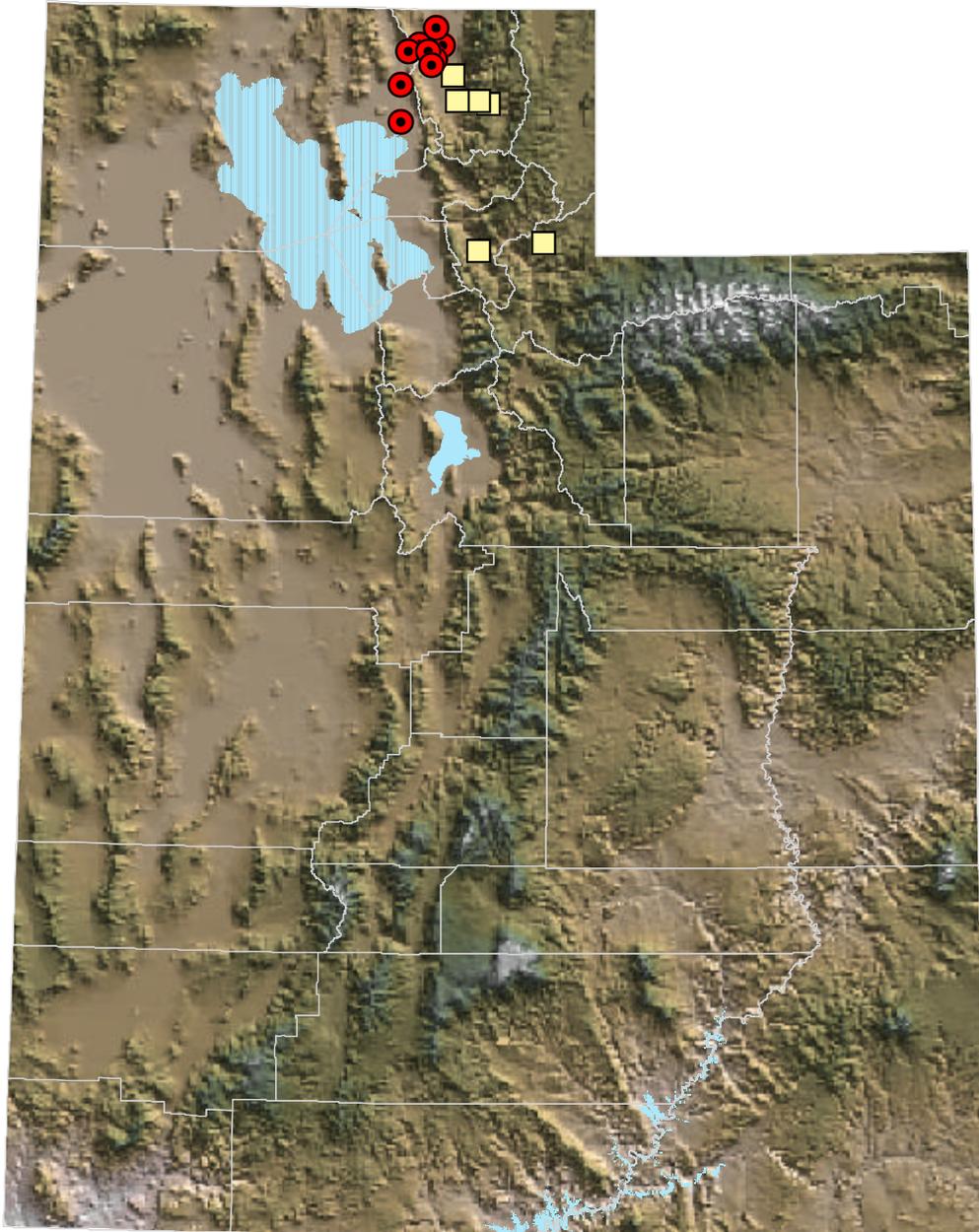


Figure 22. Distribution of the Paiute sculpin (*Cottus beldingi*). Red circles represent records obtained since 1983, inclusive, and yellow squares represent records obtained before 1983.

Utah Lake Sculpin
Cottus echinatus

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Sculpins (Cottidae)

SUBSPECIES: No subspecies have been proposed.

OTHER NAMES: This species was included with other sculpins under the name *Cottus semiscaber* (e.g., as in Tanner 1936) until it was recognized as a distinct species (Bailey and Bond 1963).

CONSERVATION STATUS DESIGNATIONS

This species is presumed to be extinct and is not currently included on lists of species of conservational concern by any government agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is considered to be extinct. It is known from only seven specimens collected in Utah Lake between 1880 and 1928 (Bailey and Bond 1963) where it was endemic (Bailey and Bond 1963, Lee et al. 1980, Sigler and Sigler 1996). At the time of its description, Bailey and Bond (1963) questioned whether this species was able to survive the low levels of Utah Lake in the early 1930s discussed by Tanner (1936), who wrote: "At this writing Jan. 1936 practically all the Suckers as well as other fish in Utah Lake have been killed by the severe drought of the past four years.... During the winter of 1934-35 the water was so shallow that hundreds of tons of suckers and carp were killed due to freezing and crowding in the few deep holes." The species has not been detected since then.

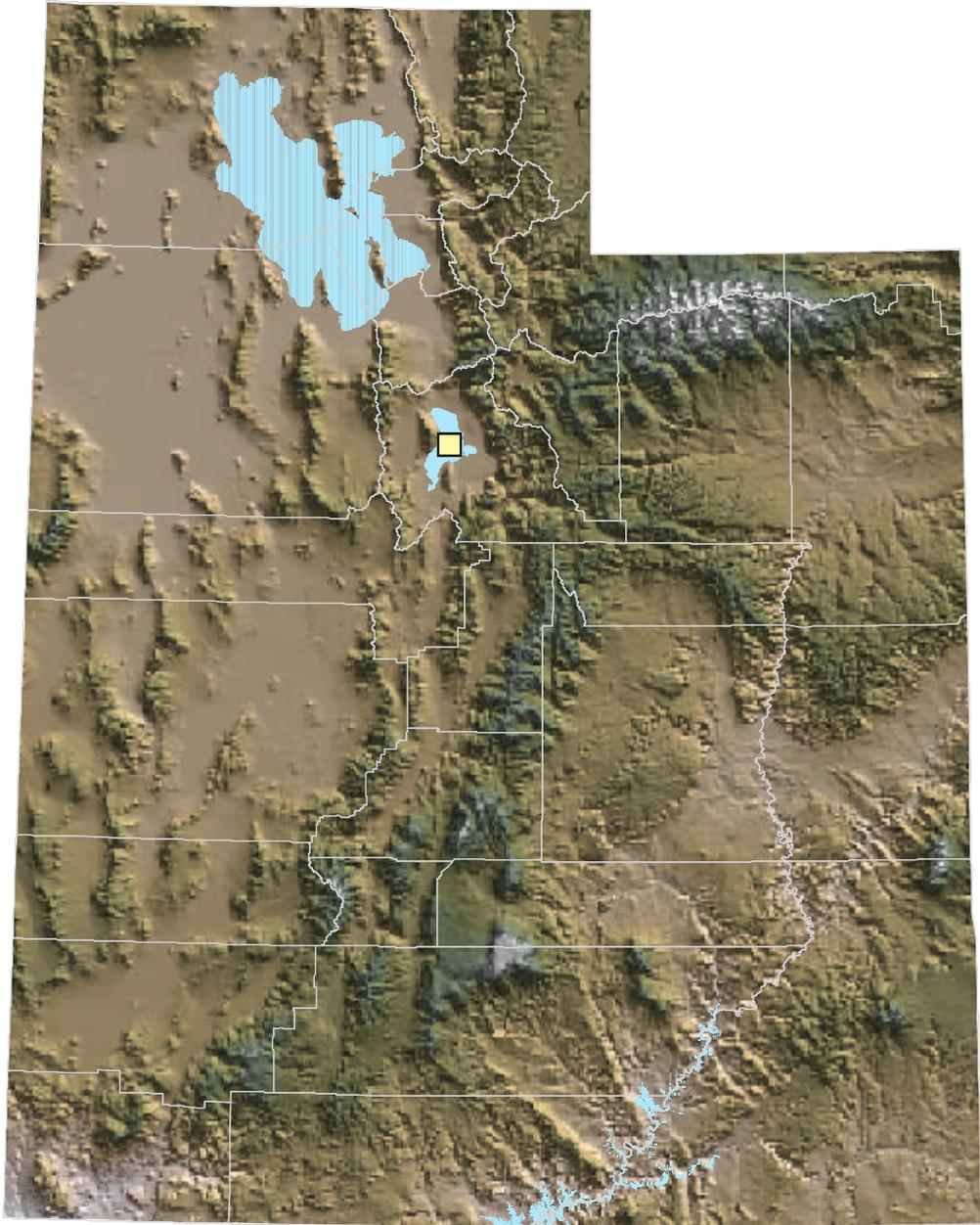


Figure 23. The location of the population of the Utah Lake sculpin (*Cottus echinatus*).

Bear Lake Sculpin
Cottus extensus

TAXONOMY AND NOMENCLATURE

CLASS: Bony Fishes (Osteichthys)

FAMILY: Sculpins (Cottidae)

SUBSPECIES: The species is monotypic.

OTHER NAMES: This species was included with other sculpins under the name *Cottus semiscaber* (e.g., as in Tanner 1936) until it was recognized as a distinct species (McConnell et al. 1957, Bailey and Bond 1963).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in Bear Lake, Rich County (Bailey and Bond 1963), and it has been successfully introduced in Flaming Gorge Reservoir, Daggett County (Sigler and Sigler 1987). In Bear Lake, the fish uses benthic habitat throughout the lake. McConnell et al. (1957) wrote: "From May through October, the majority of the sculpins were in water more than 50 feet deep, and a large number were taken in water 175 feet deep. The sculpin apparently spawns ... near shore around rocks. After spawning, it migrates to deeper water despite the fact that no cover exists in the deeper areas." Describing bottom types of Bear Lake they reported: "From the shore to a depth of about 25 feet the bottom is sand except for the rocky areas previously mentioned [at the shoreline]. This sand is gradually replaced by silt and marl; below about 75 feet, the bottom material is a fine gray silt marl that is 58 percent CaCO₃."

This species is abundant in Bear Lake, being surpassed there in numbers only by the Bonneville cisco (*Prosopium gemmifer*) (Sigler and Sigler 1987), and is abundant in Flaming Gorge Reservoir, as well. These populations are believed to be stable and no threats to their persistence have been identified. Both water bodies are heavily utilized for recreational purposes, and several species of sport fishes have been introduced in these waters. These potential threats, however, have as yet had no documented effect on population size.

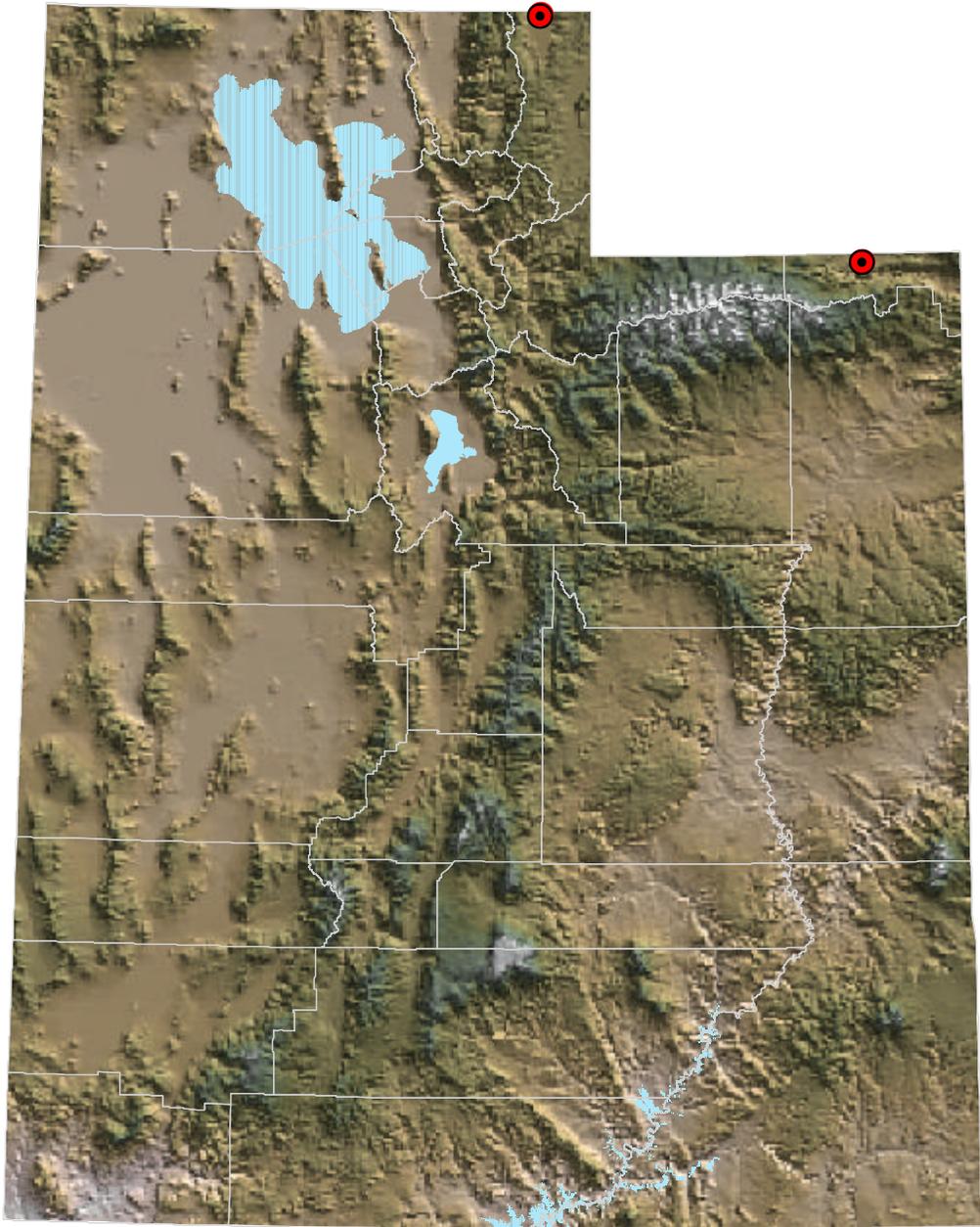


Figure 24. Distribution of the Bear Lake sculpin (*Cottus extensus*).

Amphibians

Plains Spadefoot
Spea bombifrons

TAXONOMY AND NOMENCLATURE

CLASS: Amphibians (Amphibia)

FAMILY: Spadefoots (Pelobatidae)

SUBSPECIES: No subspecies are recognized.

CONSERVATION STATUS DESIGNATIONS

This species is not currently included on lists of species of conservational concern by any government agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This is perhaps the most poorly documented amphibian species in Utah, occurring in southeast San Juan County (Fig. 25). Tanner (1989) was the first to consider Utah to be within the range of the species, but he did not provide specific localities. Hammerson (1999) mapped a locality barely within Utah and commented: "In San Juan County, Utah, the species is found within shouting distance of the western edge of Montezuma County, Colorado" A single specimen has been collected at a second locality in San Juan County. Habitat requirements within this area are not documented.

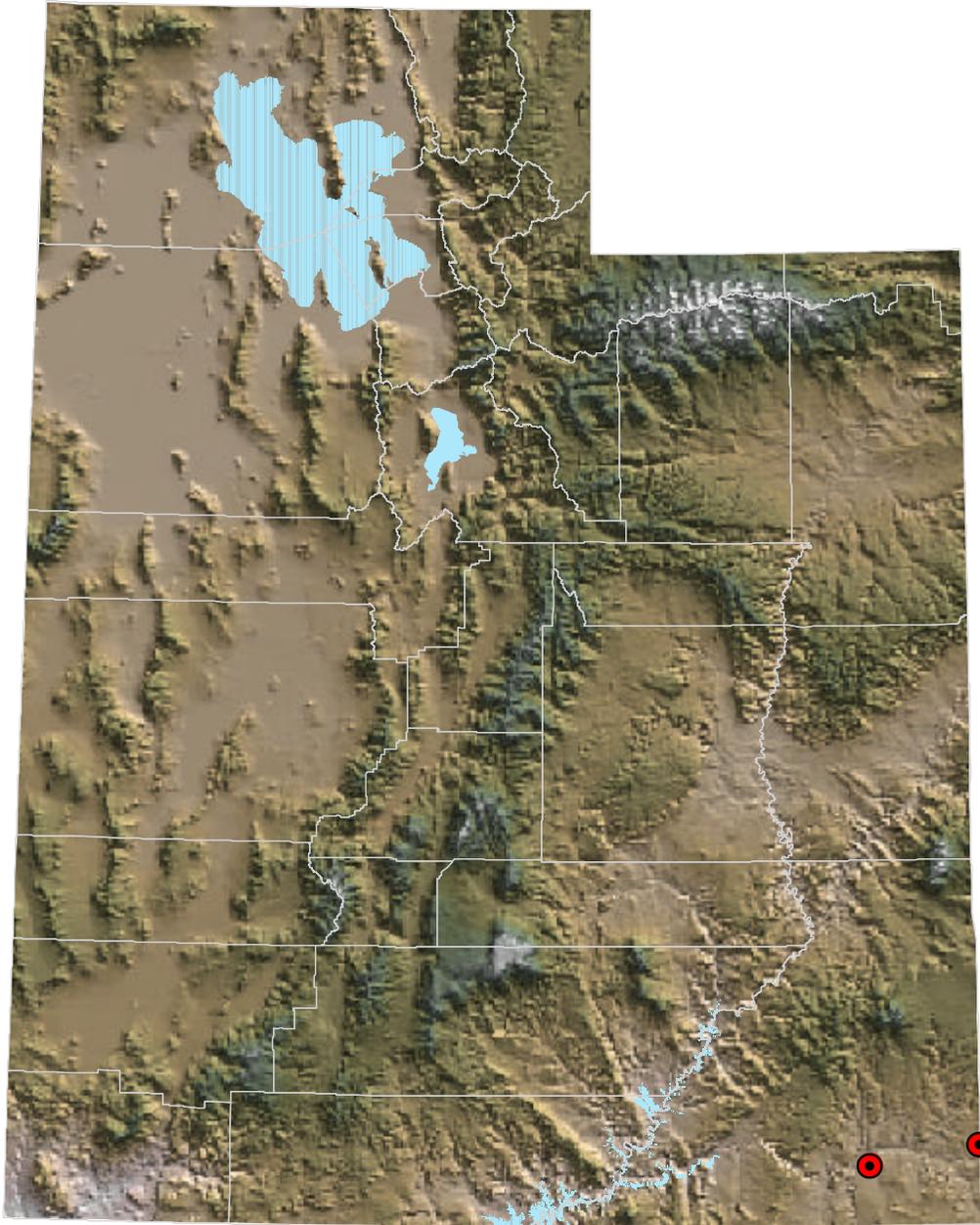


Figure 25. Distribution of the Plains spadefoot (*Spea bombifrons*).

Mexican Spadefoot
Spea multiplicata

TAXONOMY AND NOMENCLATURE

CLASS: Amphibians (Amphibia)

FAMILY: Spadefoots (Pelobatidae)

SUBSPECIES: No subspecies are currently recognized.

OTHER NAMES: Collins and Taggart (2002) preferred the common name “New Mexico spadefoot.” Formerly the taxon *multiplicata* was considered to be a subspecies of *Spea hammondi* (e.g., Tanner 1989).

CONSERVATION STATUS DESIGNATIONS

No government agencies consider this species to be of conservational concern.

DISTRIBUTION AND ABUNDANCE IN UTAH

Like the Plains spadefoot, virtually no information is available regarding populations of this species in Utah, and the distribution, abundance, and habitat associations of the Mexican spadefoot are poorly documented. This species occurs in scattered localities in San Juan County (Fig. 26). Persons (1992) reported it to occur throughout Natural Bridges National Monument and found it to be common. Breeding occurs in ephemeral pools (Persons 1992), but other aspects of habitat requirements have not been reported.

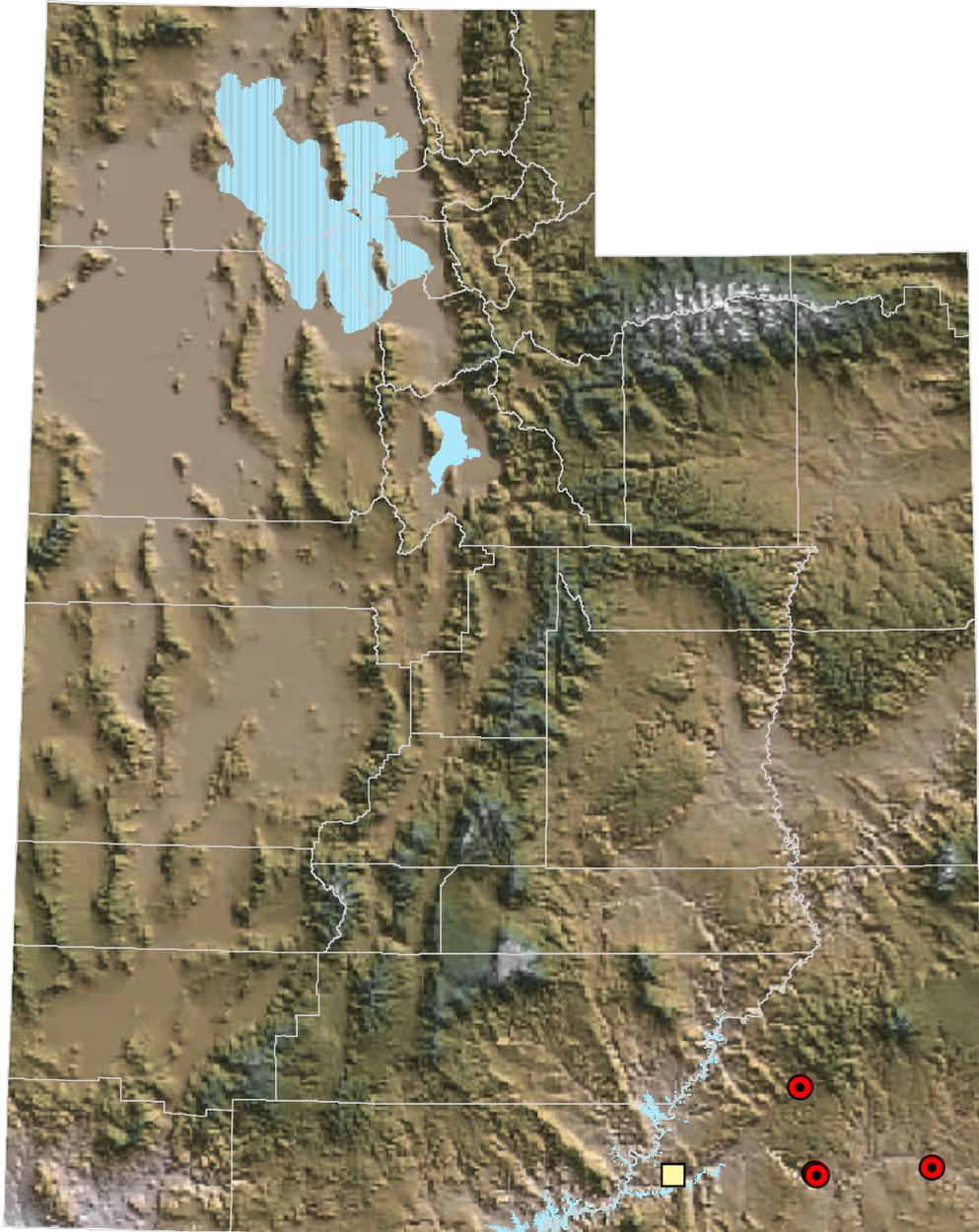


Figure 26. Distribution of the Mexican spadefoot (*Spea multiplicata*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Western Toad
Bufo boreas

TAXONOMY AND NOMENCLATURE

CLASS: Amphibians (Amphibia)

FAMILY: Toads (Bufonidae)

SUBSPECIES: The subspecies that occurs in Utah is the boreal toad, *Bufo boreas boreas*.

OTHER NAMES: The subspecies common name “boreal toad” has been incorrectly used as a substitute for the species common name “western toad.”

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

The western toad occurs in the montane areas of central and northern Utah (Fig. 27) where it is found in association with permanent water bodies in a variety of habitats, including riparian, mountain shrub, mixed conifer, and aspen-conifer assemblages. Breeding sites are in small pools, beaver ponds, reservoirs, and backwaters and side-channels of creeks and rivers. Adults may traverse miles of upland habitat during non-breeding periods (P. Thompson, UDWR, pers. comm.).

Although Tanner (1931) and others (e.g., Ross et al. 1995) reported this species to be historically common, Ross et al. (1995) gave evidence of the loss of some breeding colonies in Utah. This species appears to fit the pattern of continuing population decline observed in many amphibian species, especially in western North America. Causes of declines, however, are not understood. Habitat loss is a widely recognized contributing factor, and has undoubtedly played a role in some population losses, especially populations formerly occupying what are now urban areas. Chytrid fungus (*Batrachochytrium dendrobatidis*) has been implicated in declines elsewhere, but does not appear to have contributed to the loss of populations in Utah (C. Bailey, UDWR, pers. comm.). Many of the population changes that have been detected remain unexplained.

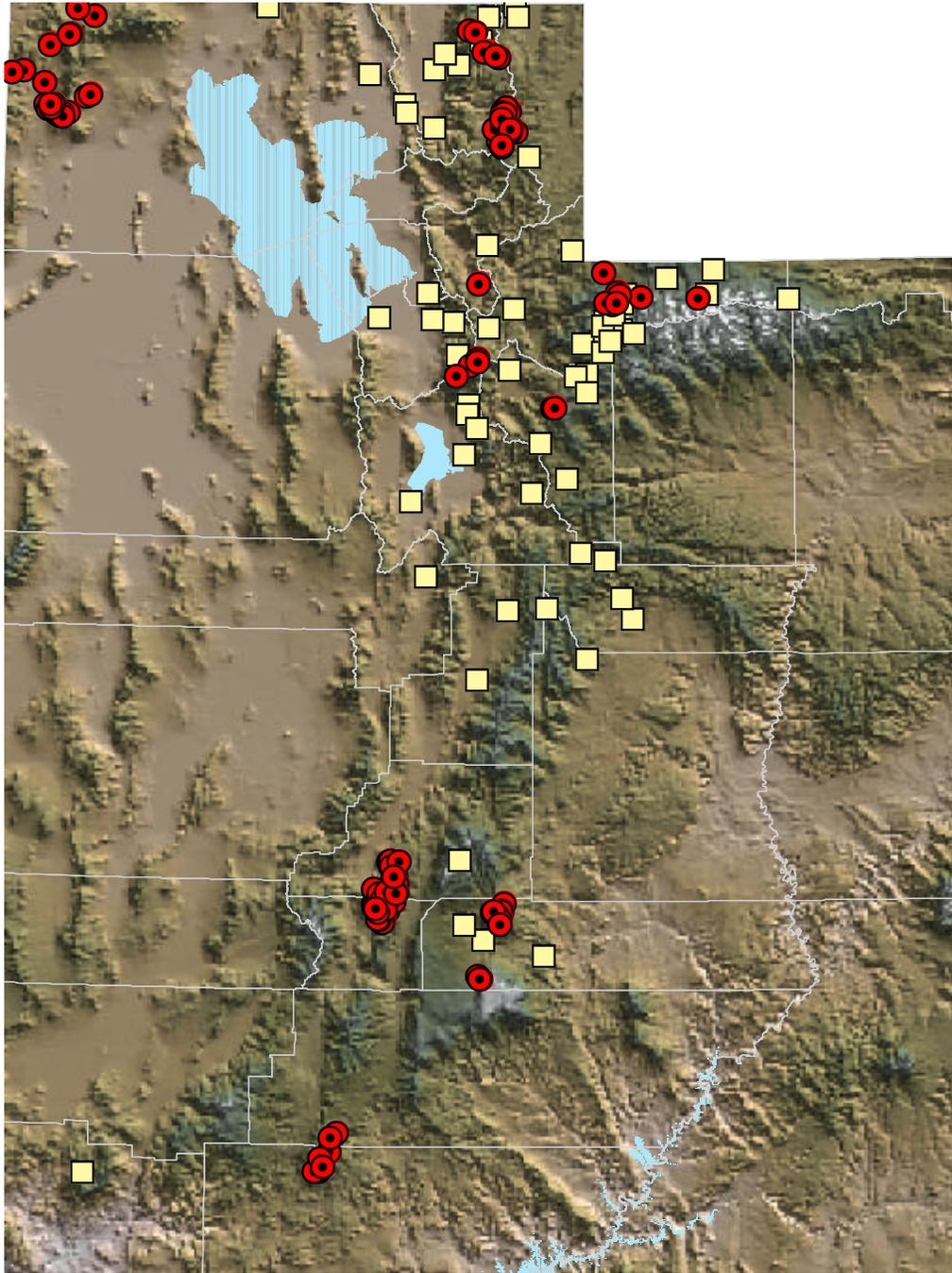


Figure 27. Distribution of the western toad (*Bufo boreas*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Great Plains Toad
Bufo cognatus

TAXONOMY AND NOMENCLATURE

CLASS: Amphibians (Amphibia)

FAMILY: Toads (Bufonidae)

SUBSPECIES: No subspecies currently are recognized.

CONSERVATION STATUS DESIGNATIONS

This species is not currently included on lists of species of conservational concern by any government agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

No recent records are available to substantiate the continued presence of this species in Utah. Formerly recorded localities are scattered in the eastern Bonneville Basin (Pack 1922, Krupa 1990, Mulcahy et al. 2002) and southeastern Utah (Fig. 28) (Tanner 1931, Atwood et al. 1980, Krupa 1990). Mulcahy et al. (2002) considered the presence of this species in the Bonneville Basin to be the result of human introductions (see also Hovingh 1997). A Kane County record (Atwood et al. 1980) cannot be verified because a voucher specimen was not retained, and additional evidence has not surfaced despite intensive surveys in that region (G. Oliver, UDWR, pers. comm.). It is conceivable that the record in Emery County, too, represents an introduced population because evidence consists only of a single individual collected during 1927. Several specimens substantiate the former presence of the species in Grand County. Krupa (1990) mapped records in San Juan County, but the specific localities of these collections has not been determined (Mulcahy et al. 2002). Therefore, the status remains enigmatic; more than 70 years ago Tanner (1931) commented "It is not clear why more specimens of this species have not been collected in Utah."

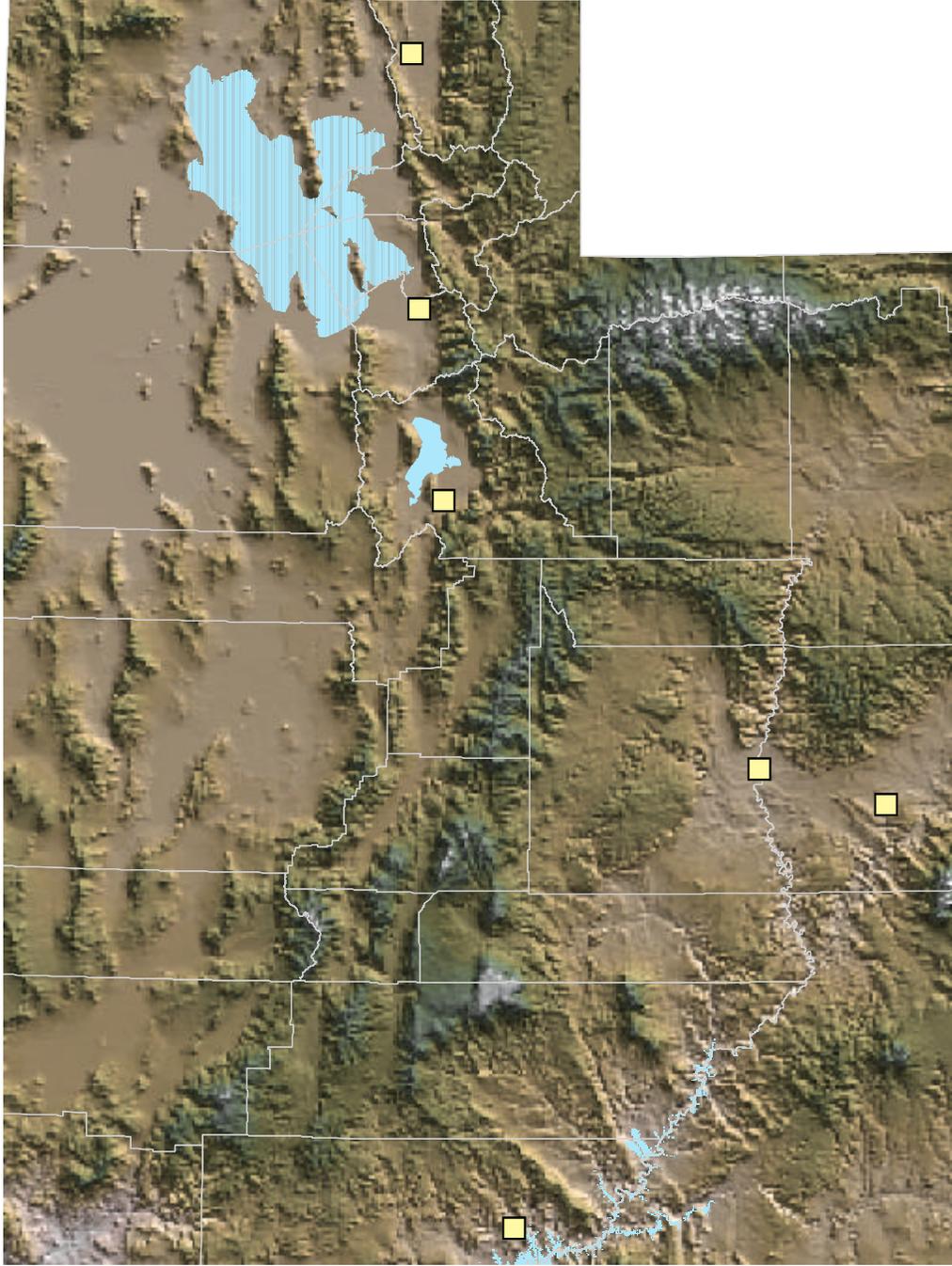


Figure 28. Distribution of the Great Plains toad (*Bufo cognatus*).

Arizona Toad
Bufo microscaphus

TAXONOMY AND NOMENCLATURE

CLASS: Amphibians (Amphibia)

FAMILY: Toads (Bufonidae)

SUBSPECIES: No subspecies are currently recognized (Gergus 1998).

OTHER NAMES: The name *Bufo compactilis* was previously used for this species (e.g., Tanner 1931). The common name "southwestern toad" has been used by many authors and remains the common name preferred by some (e.g., Collins and Taggart 2002).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southern Utah in Washington, Kane, and San Juan counties (Fig. 29) where it occurs in juniper-dominated habitats and low-elevation riparian habitat, generally in association with permanent or semi-permanent water bodies. Dahl et al. (2000) described a breeding site in Utah that was "a narrow (1-3 m width), shallow, intermittent stream (<0.5 m in depth at its deepest point)." They also reported: "In many places stream banks rise 3-4 m above the flow. The streambed consists of various mixtures of sandy soil and rock, and stream bank vegetation ranges from sparse shrubs and grasses to thick shrubs and trees with large, branching canopies."

Population sizes have not been documented, but the species can be locally common, particularly during breeding periods. Population trends have not been explicitly enumerated, but declines are apparent on a regional scale. Habitat loss, particularly water withdrawal, is an important threat to many populations. In some areas, population decline has evidently resulted from habitat alteration and interactions with Woodhouse's toad (*Bufo woodhousii*). Price and Sullivan (1988) wrote: "*B. woodhousii* generally utilizes lentic aquatic sites for breeding and avoids the lotic habitats frequented by *microscaphus*. Human alteration, however, apparently has allowed *B. woodhousii* access to habitats previously occupied solely by *microscaphus* ...and there are indications that *B. woodhousii* is replacing *B. microscaphus* in some drainages." Conversion of lotic aquatic sites to lentic situations in Utah not only allows *B. woodhousii* to supplant *B. microscaphus* but also brings the two together at breeding sites. Of importance is that *B. microscaphus* readily hybridizes with Woodhouse's toad, which has resulted in the genetic swamping of some populations (Blair 1955).

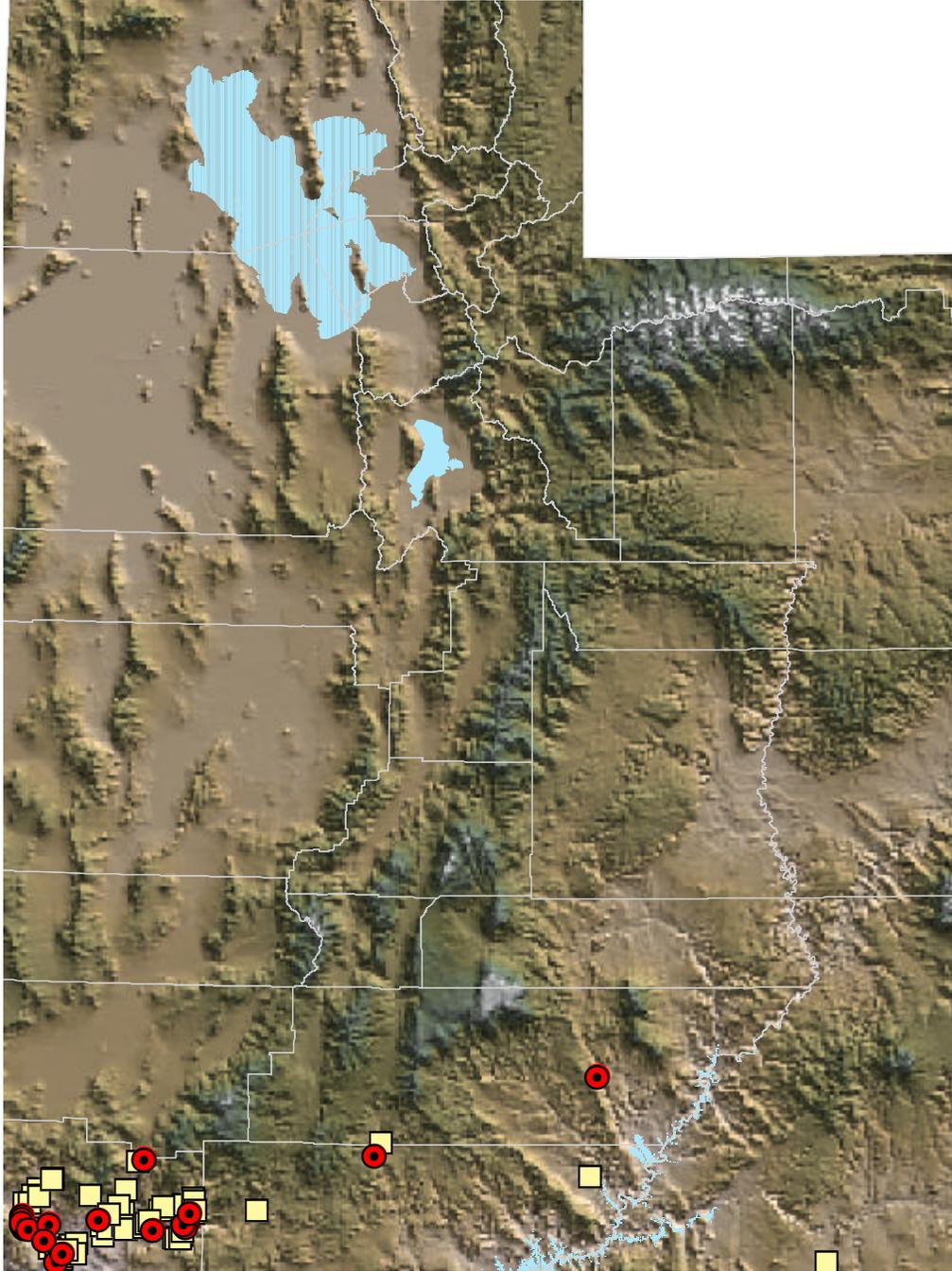


Figure 29. Distribution of the Arizona toad (*Bufo microscaphus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Pacific Treefrog
Pseudacris regilla

TAXONOMY AND NOMENCLATURE

CLASS: Amphibians (Amphibia)

FAMILY: Treefrogs (Hylidae)

SUBSPECIES: Most authors do not currently recognize subspecies of *Pseudacris regilla*.

OTHER NAMES: Formerly, this species was placed in the genus *Hyla* (e.g., Tanner 1931, Schwinn and Minden 1980). Collins and Taggart (2002) preferred the common name "Pacific chorus frog."

CONSERVATION STATUS DESIGNATIONS

This species is not currently included on lists of species of conservational concern by any government agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species has been reported to occur in the southwestern (Washington County) and the northwestern (Box Elder and Weber counties) parts of the state (Fig. 30) (Tanner 1931). All records are historical, the most recent being from 1928. Another locality reported in Weber County (Tanner 1931) may be based on incorrect locality data.

Exceedingly few individuals have been found. Tanner (1931) commented: "I am unable to understand why this species is so scarce [sic] in Utah." The lack of recent records suggests that populations may have been extirpated and that the range of this species has receded out of Utah, which was at the periphery of the distribution. If it is extant in Utah, it likely is threatened by alteration and destruction of its riparian habitat.

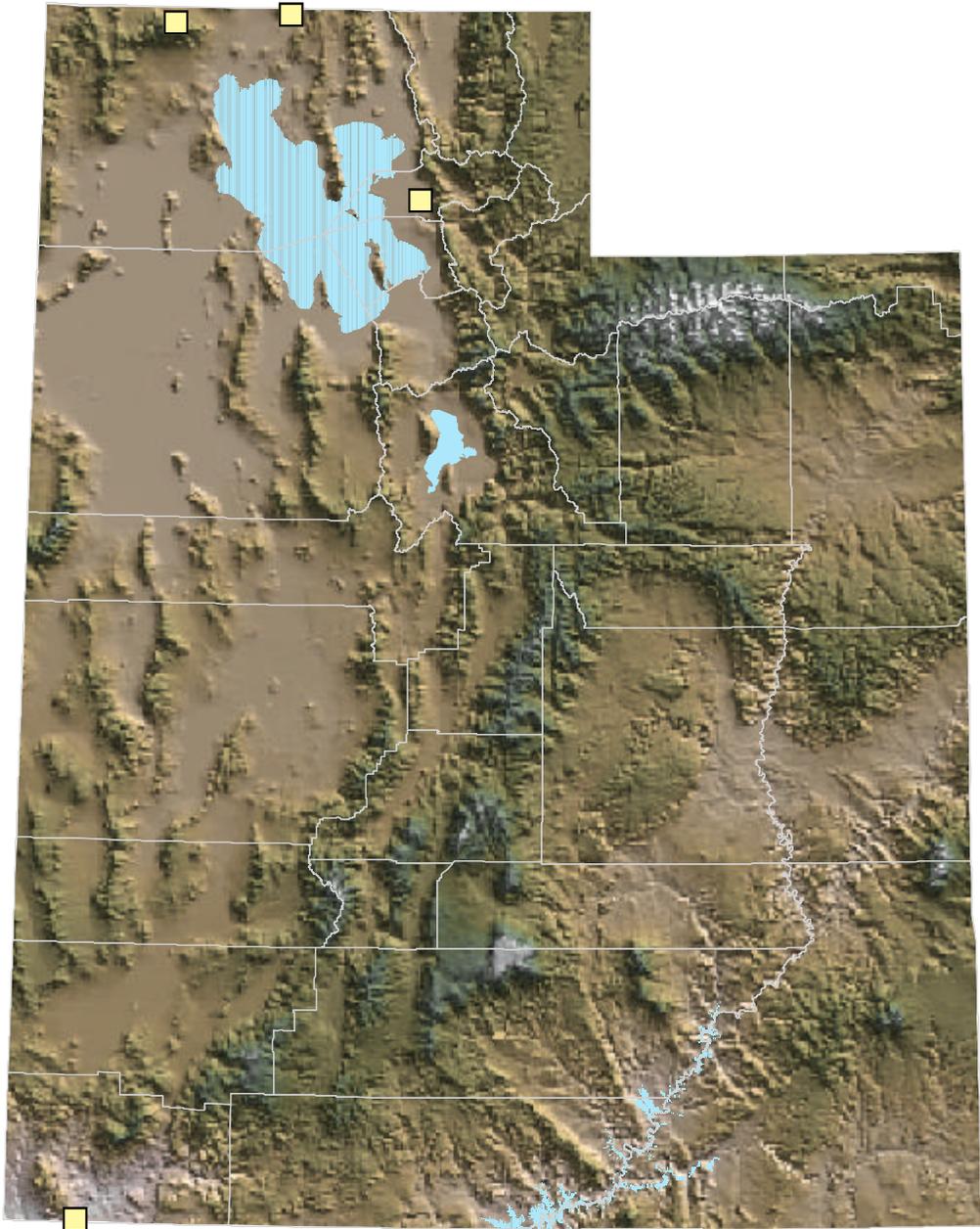


Figure 30. Distribution of the Pacific treefrog (*Pseudacris regilla*).

Columbia Spotted Frog
Rana luteiventris

TAXONOMY AND NOMENCLATURE

CLASS: Amphibians (Amphibia)

FAMILY: True frogs (Ranidae)

SUBSPECIES: No subspecies have been proposed.

OTHER NAMES: This species was formerly considered to be conspecific with *Rana pretiosa*, the spotted frog. Green et al. (1997) recognized *luteiventris* as a distinct species and suggested that additional analysis could result in the recognition of subspecies or, perhaps, more species.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003) as a Conservation Species for which a multi-agency conservation agreement was completed during 1998.

DISTRIBUTION AND ABUNDANCE IN UTAH

The Columbia spotted frog occurs in scattered locations in the Bonneville Basin of western Utah, including parts of the Wasatch Mountains, the San Pitch River Drainage, and isolated springs and wetlands of the West Desert (Fig. 31). Within this region, populations are tied to aquatic habitat with perennial sources of water. Breeding invariably occurs in small pools or ponds. Typically, breeding sites have little or no current and are surrounded by dense aquatic vegetation. Floating mats of vegetation are often present, and the bottom substrate is typically deep, fine silt (Morris and Tanner 1969, Ross et al. 1993, Ross et al. 1994).

Populations are vulnerable to the loss and degradation of aquatic habitat. Historically, wetland destruction associated with urban expansion resulted in the loss of populations at lower elevations along the Wasatch Front. Remaining montane and desert wetland habitat are all affected by water withdrawal, pollution, livestock use, or nonnative species, and combinations of these threats are usual. In some areas, however, threats have been effectively managed and populations have apparently stabilized.

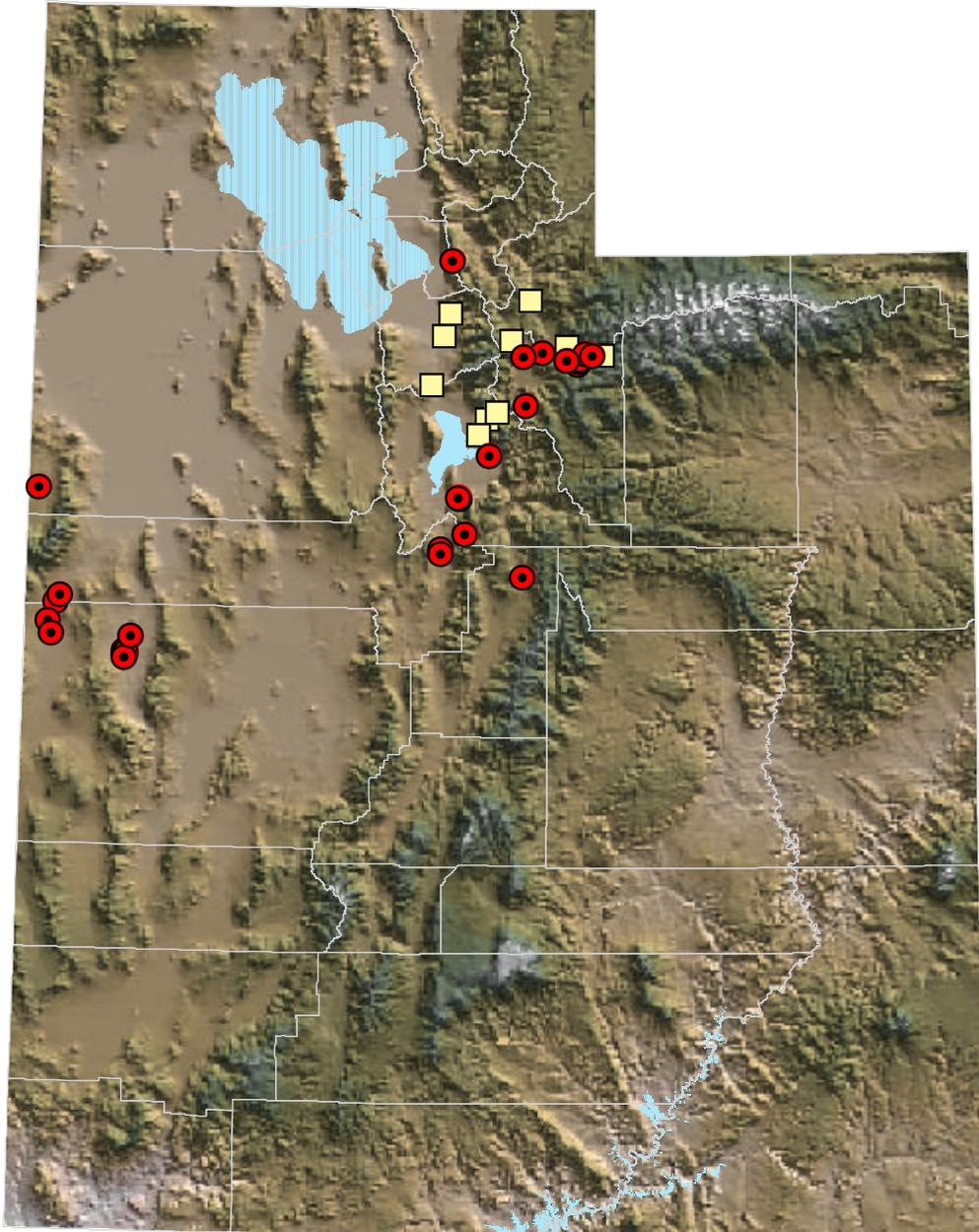


Figure 31. Distribution of the Columbia spotted frog (*Rana luteiventris*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Relict Leopard Frog
Rana onca

TAXONOMY AND NOMENCLATURE

CLASS: Amphibians (Amphibia)

FAMILY: True frogs (Ranidae)

SUBSPECIES: No subspecies are currently recognized (Jennings 1988).

OTHER NAMES: Early works (e.g., Wright and Wright 1949) treated the taxon *onca* as a subspecies of *Rana pipiens*. Jaeger et al. (2001) examined molecular and morphological data for frogs of the Virgin River drainage of Utah and Arizona and concluded that what had formerly been thought to comprise 2 species (*R. onca* and *R. yavapaiensis*) represented a single, morphologically variable species. Although some individuals closely resembled *R. yavapaiensis*, genetic data identified these populations as *R. onca*.

CONSERVATION STATUS DESIGNATIONS

The species is considered a candidate for listing as threatened or endangered under the Endangered Species Act (67 Federal Register 40659-40660). The species is included in the UDWR Sensitive Species List because of this federal status.

DISTRIBUTION AND ABUNDANCE IN UTAH

Historically this frog occurred in aquatic habitats along the Virgin River and its tributaries near St. George in southern Washington County (Fig. 32) (Tanner 1931, Platz 1984, Jennings 1988, Jennings et al. 1995, Jaeger et al. 2001). This species is believed to have been extirpated. The last documented specimens were collected during 1965, but a population possibly occurred near St. George until the early 1980s (UDWR unpublished data).

Tanner (1929, 1931) reported the species to inhabit small streams. Platz (1984) suggested that "conditions restrict the existence of leopard frogs particularly to springs (and some stream pools) with adequate vegetation, which ameliorates the effects of harsh sun, and dry heat." He stated: "Permanent water sites suitable for *onca* are chiefly cold springs and stream pools deep enough (12 to 16 inches) to permit escape from predators. Although egg masses are unknown, it is likely that backwaters were required for breeding and subsequent early developmental stages." Platz (1984) also noted that all historical localities for this species were at elevations lower than 3,000 ft and that *Rana pipiens* occurred in the same region at elevations higher than this. One of the Utah localities last known to have been inhabited by *R. onca*, Berry Springs, has been described by Platz (1984): "The original pond associated with the spring measured 30 to 40 feet in diameter and 3 to 4 feet deep. Large trees and a half acre of plant cover exist immediately to the west of the spring... the spring was quite lush and included watercress and emergent aquatic vegetation as late as the early 1960's." This population was lost, probably when the spring was dewatered for several years during the early 1970s. The conditions leading to the extirpation of other populations is unknown, but habitat loss is likely to have been involved.

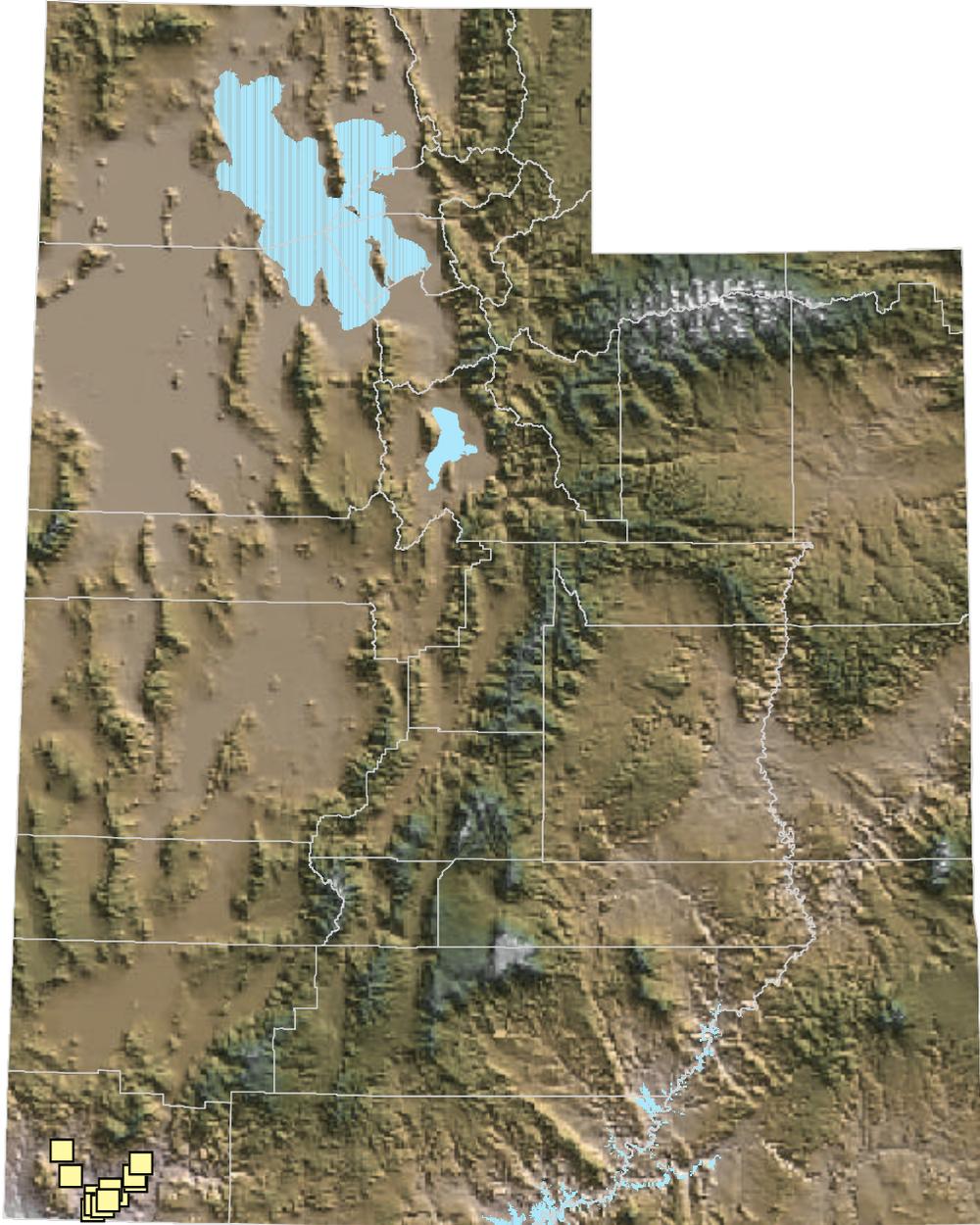


Figure 32. Distribution of records of the relict leopard frog (*Rana onca*).

Reptiles

Desert Tortoise
Gopherus agassizii

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Tortoises (Testudinidae)

SUBSPECIES: No subspecies are recognized.

CONSERVATION STATUS DESIGNATIONS

USFWS listed the Beaver Dam Slope, Utah, populations as threatened under the Endangered Species Act during 1980 (45 Federal Register 55654-55666). The remaining Utah populations were included in an emergency listing of all desert tortoise populations to the north and west of the Colorado River as endangered during 1989 (54 Federal Register 32326-32331); the status of these populations were reclassified as threatened during 1990 (55 Federal Register 12178-12191). A recovery plan has been produced as a guide to conservation efforts (USFWS 1994c). The species is included in the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

The species is restricted to the southwest corner of the state, occurring in the southern half of Washington County (Fig 33). Within the occupied range, diverse desert scrub habitats are occupied, including those dominated by creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), blackbrush (*Coleogyne ramosissima*), and sagebrush (*Artemisia* spp.). Local distribution is determined in part by the availability of natural recesses suitable for use as den sites.

Populations have declined from historical levels (USFWS 1994c). Tortoise densities have declined substantially on the Beaver Dam Slope of western Washington County (Woodbury and Hardy 1948, Coombs 1977, Fridell and Coffeen 1993, McLuckie et al. 2001). Densities in the St. George vicinity are locally high but are also declining; the adult mortality rate is high and apparently increasing (McLuckie et al. 2002). The population in eastern Washington County in Zion National Park is small (McLuckie et al. 2000).

Threats to population viability are numerous and diverse (see discussion in USFWS 1994c). Livestock (cattle) grazing is a threat to population viability (Coombs 1977, Berry 1978) through competition for food as well as trampling of food resources, dens, and young. Habitat fragmentation and loss through development is also an important threat. Increased predation rates by common ravens (*Corvus corax*) may be correlated with urbanization and agricultural development in desert habitat. The prevalence of Upper Respiratory Tract Disease is increasing in most populations and may result in a dramatically increased mortality rate. Other serious threats include predation by domestic dogs, road mortality, and illegal collection.

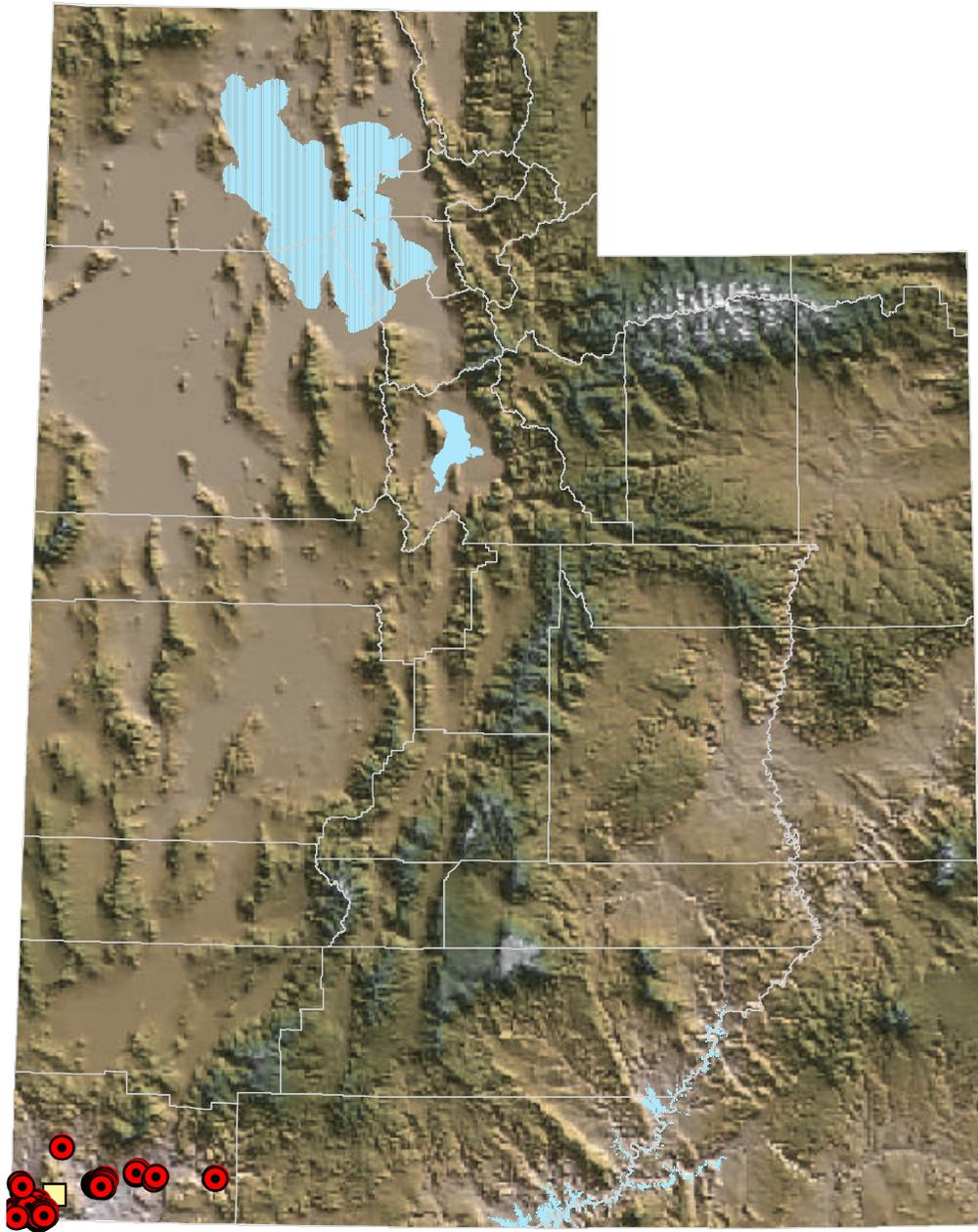


Figure 33. Distribution of the desert tortoise (*Gopherus agassizii*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Desert Iguana
Dipsosaurus dorsalis

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Iguanas (Iguanidae)

SUBSPECIES: The subspecies that occurs in Utah is the northern desert iguana, *Dipsosaurus dorsalis dorsalis*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the southwestern corner of Washington County (Fig. 34). This population is primarily associated with a small portion of a wide, sandy wash. Vegetation in the occupied habitat is sparse and patchy, consisting primarily of desert willow (*Chilopsis linearis*) and salt cedar (*Tamarix* sp.) (Coombs 1977).

The size of this population has not been rigorously determined, and no data are available to suggest a change in the population size. Coombs (1977) estimated the population to comprise about 250 individuals. This viability of this small population is threatened by livestock use of this portion of the wash, which results in competition for food plants and destruction of burrows.

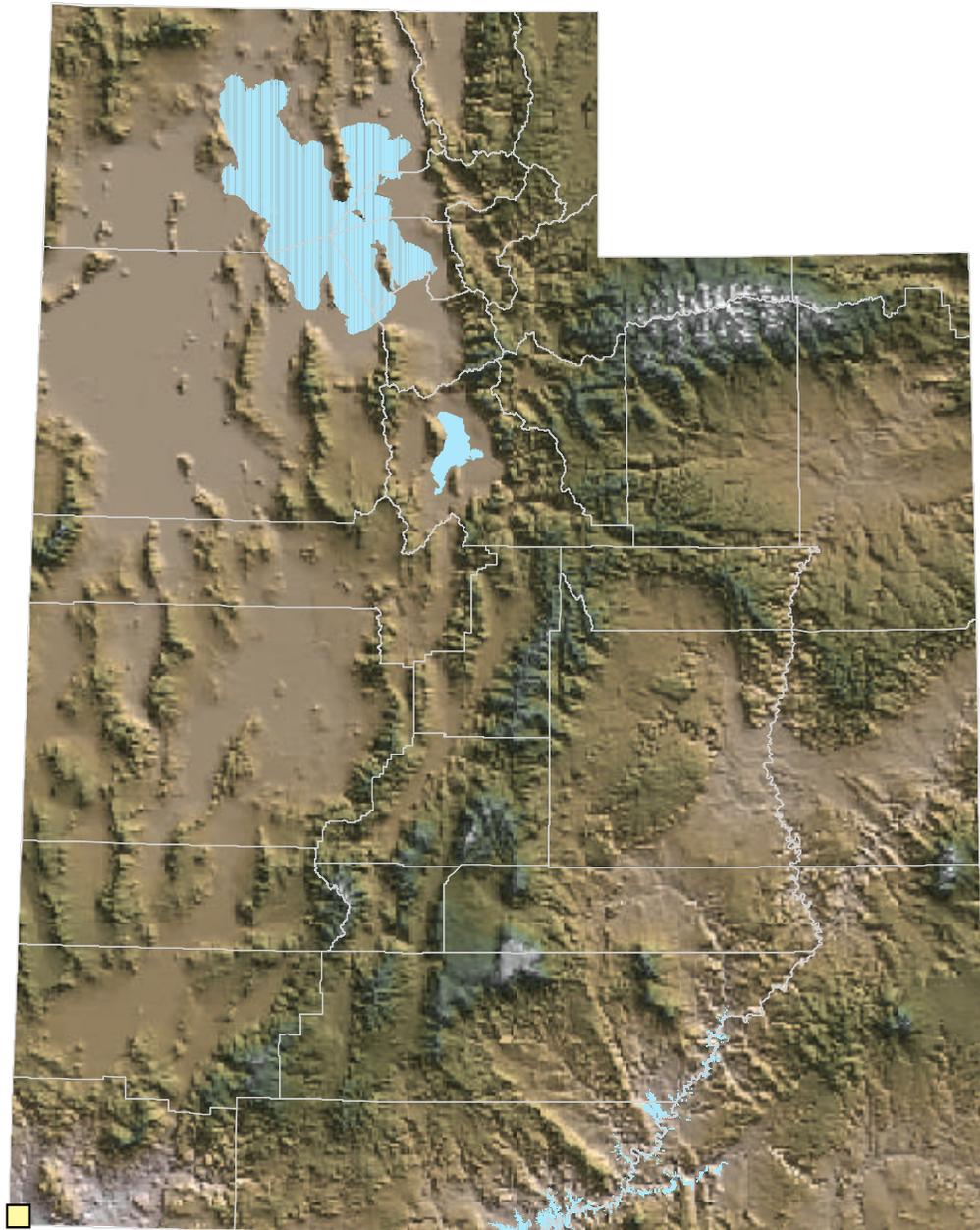


Figure 34. Distribution of the desert iguana (*Dipsosaurus dorsalis*).

Common Chuckwalla
Sauromalus ater

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Iguanas (Iguanidae)

SUBSPECIES: No subspecies are currently recognized. Although 2 subspecies, *obesus* and *multiforaminatus*, were formerly considered to be represented in Utah, an analysis of molecular and morphological data by Hollingsworth (1998) demonstrated that the nominal subspecies of chuckwallas were invalid.

OTHER NAMES: This species was formerly referred to as *Sauromalus obesus*. In a taxonomic revision of chuckwallas, Hollingsworth (1998) demonstrated that *S. obesus* is a junior synonym of *S. ater*. Collins and Taggart (2002) did not adopt this change and retained the name *S. obesus*, applying the common name “chuckwalla.”

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

In Utah this species occurs in southern Washington County and in east Kane and Garfield counties and southeast San Juan County (Fig. 35) (Tanner and Avery 1964). Within this range, the species is always associated with boulders, rocky slopes, or cliffs in basalt formations, layered sandstone shelves, or limestone formations (Coombs 1977).

Population sizes and population trends are not known. Coombs (1977) estimated the number of chuckwallas in Washington County to be 10,000 to 15,000 individuals. Habitat loss and alteration is a primary threat to the viability of populations. Available habitat along the Colorado River was reduced through the inundation of Lake Powell. Also, because this species is herbivorous, changes in plant species composition from invading weed species and other factors is of substantial importance. Coombs (1977) considered collecting to be the greatest threat to this species in Utah.

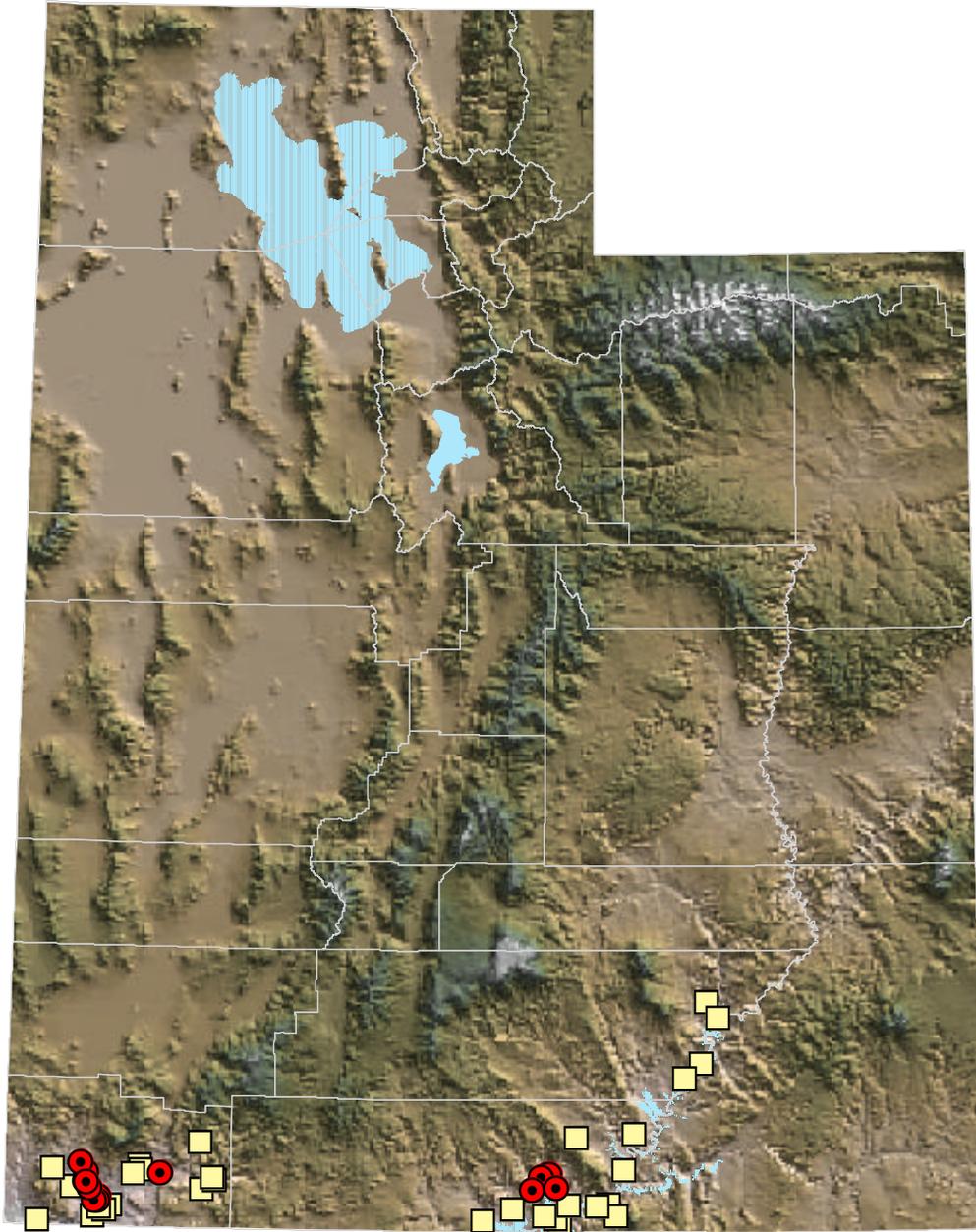


Figure 35. Distribution of the common chuckwalla (*Sauromalus ater*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Zebra-tailed Lizard
Callisaurus draconoides

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Spiny Lizards (Phrynosomatidae)

SUBSPECIES: The subspecies that occurs in Utah is the western zebra-tailed lizard, *Callisaurus draconoides rhodostictus*. Stebbins (1985), however, did not recognize the subspecies *C. d. rhodostictus* and assigned the Utah population to the type subspecies, *C. d. draconoides*.

OTHER NAMES: Collins and Taggart (2002) use the variation of the common name “zebratail lizard”; these authors apply the common name “Mojave zebratail lizard” to the subspecies *C. draconoides rhodostictus*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the southern and western parts of Washington County (Fig. 36). Populations occur primarily in notably open habitat, often in wash bottoms or other areas with sparse vegetation (Woodbury 1931, Fridell et al. 1998). Dominant plant species in occupied habitat include creosote bush (*Larrea tridentata*) and blackbrush (*Coleogyne ramosissima*).

No data are available regarding population sizes or trends. Invasive plant species that affect habitat structure are a potential threat to population viability. For example, cheatgrass (*Bromus tectorum*) is an increasingly widespread introduced grass that can fill the formerly barren patches in shrub-dominated habitat. Dense stands of this grass would be likely to result in the reduction of suitable habitat and potentially the loss of zebra-tailed lizard populations. The loss of occupied habitat to development is also an important threat.

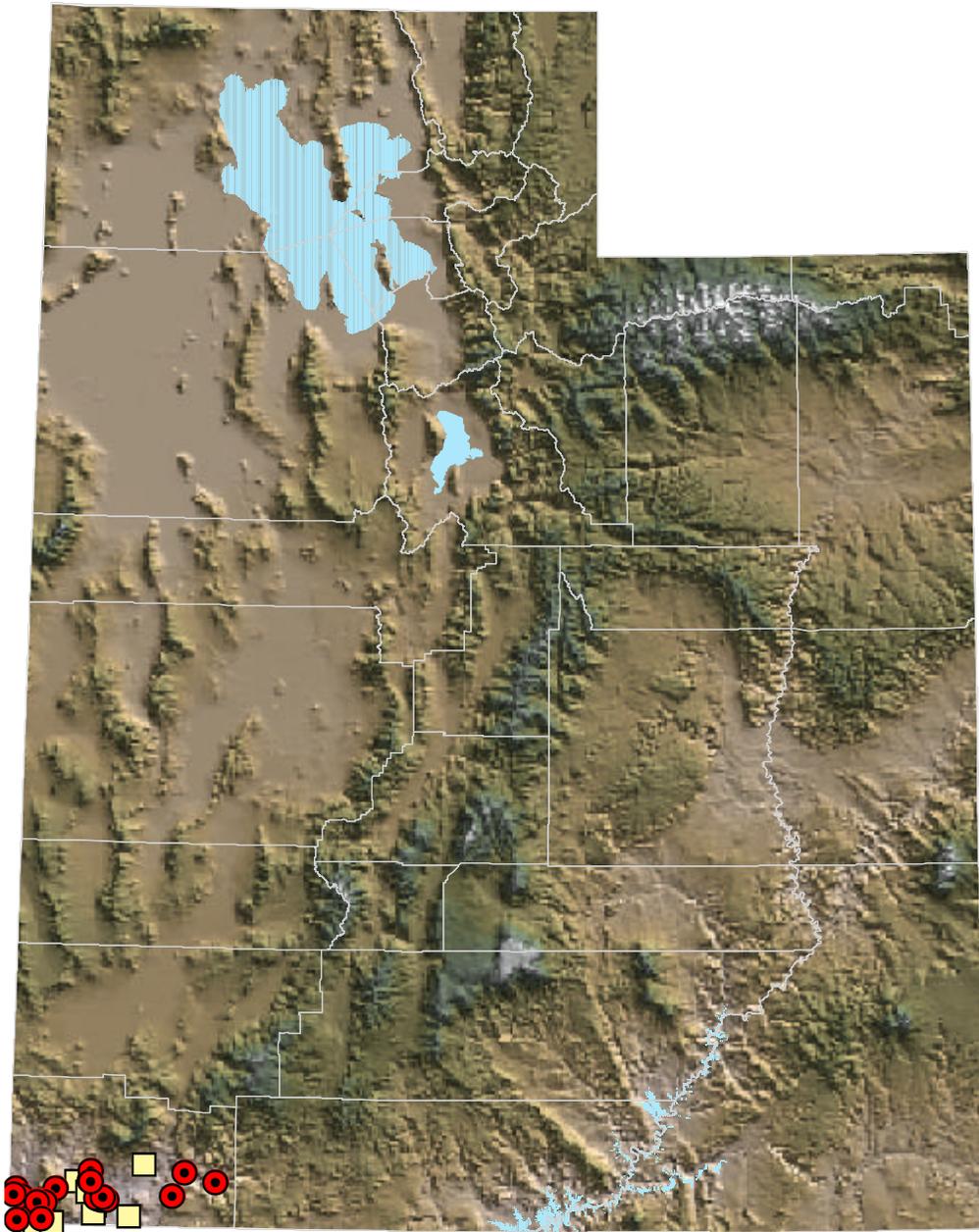


Figure 36. Distribution of the zebra-tailed lizard (*Callisaurus draconoides*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Common Lesser Earless Lizard
Holbrookia maculata

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Spiny Lizards (Phrynosomatidae)

SUBSPECIES: The subspecies occurring in Utah is the speckled earless lizard, *Holbrookia maculata approximans*. Collins and Taggart (2002) did not recognize *approximans*. In their arrangement, Utah specimens would be referred to the striped earless lizard, *H. maculata flavilenta*. Stebbins (1985) did not recognize any subspecies.

OTHER NAMES: A common name applied by many authors is “lesser earless lizard.” (e.g., Collins and Taggart 2002).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Only one specimen is known, collected during 1927 in southern San Juan Co. (Fig. 37) (Tanner 1928). Hammerson (1999), in a work on the amphibians and reptiles of Colorado, mapped a second locality, also in San Juan County. Specific data are not presented, and the location and date of the collection is not known.

Population trend is not known; apparently it has not been detected in this state since 1927. Threats to any extant populations are not known. Elsewhere in its range, this species is an inhabitant of sandy areas, sometimes in situations with considerable exposed sand and usually in habitats that are flat and sparsely vegetated.

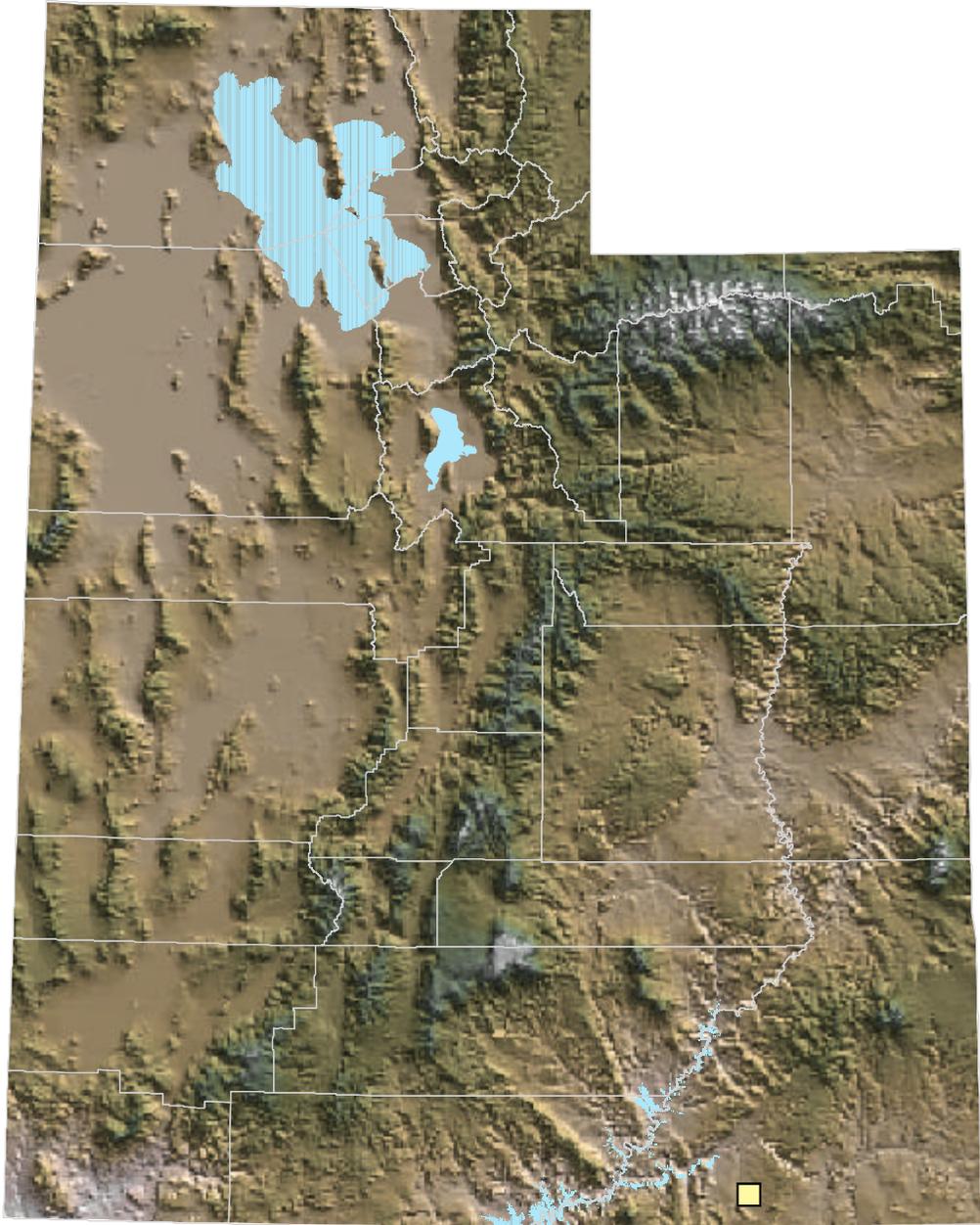


Figure 37. Distribution of the common lesser earless lizard (*Holbrookia maculata*).

Western Banded Gecko
Coleonyx variegatus

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Geckos (Gekkonidae)

SUBSPECIES: The subspecies that occurs in Utah is *Coleonyx variegatus utahensis*, the Utah banded gecko. Although Dixon (1970) questioned the validity of the subspecies, most authors have continued to recognize this taxon.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in Utah only in the southwestern corner of the state, predominately in southwestern Washington County (Fig. 38). Dixon (1970) indicated a record in southwestern Kane County, but no museum specimens or other literature references to this locality have been discovered. Within this area, populations occur in desert scrub habitat (Schwinn and Minden 1980). Wauer (1964) stated that in Zion National Park "it is occasionally dug up along the rocky hillsides or uncovered from beneath a pile of boards or logs. It also frequents the sandy flats and washes of the lower elevations of Zion's canyonlands."

Because it is nocturnal and somewhat secretive the species is uncommonly encountered, but it may be more common in Utah than records suggest. No data are available to suggest population size or trends. However, populations may be threatened by habitat loss associated with urban expansion and development that is pervasive in this region of the state.

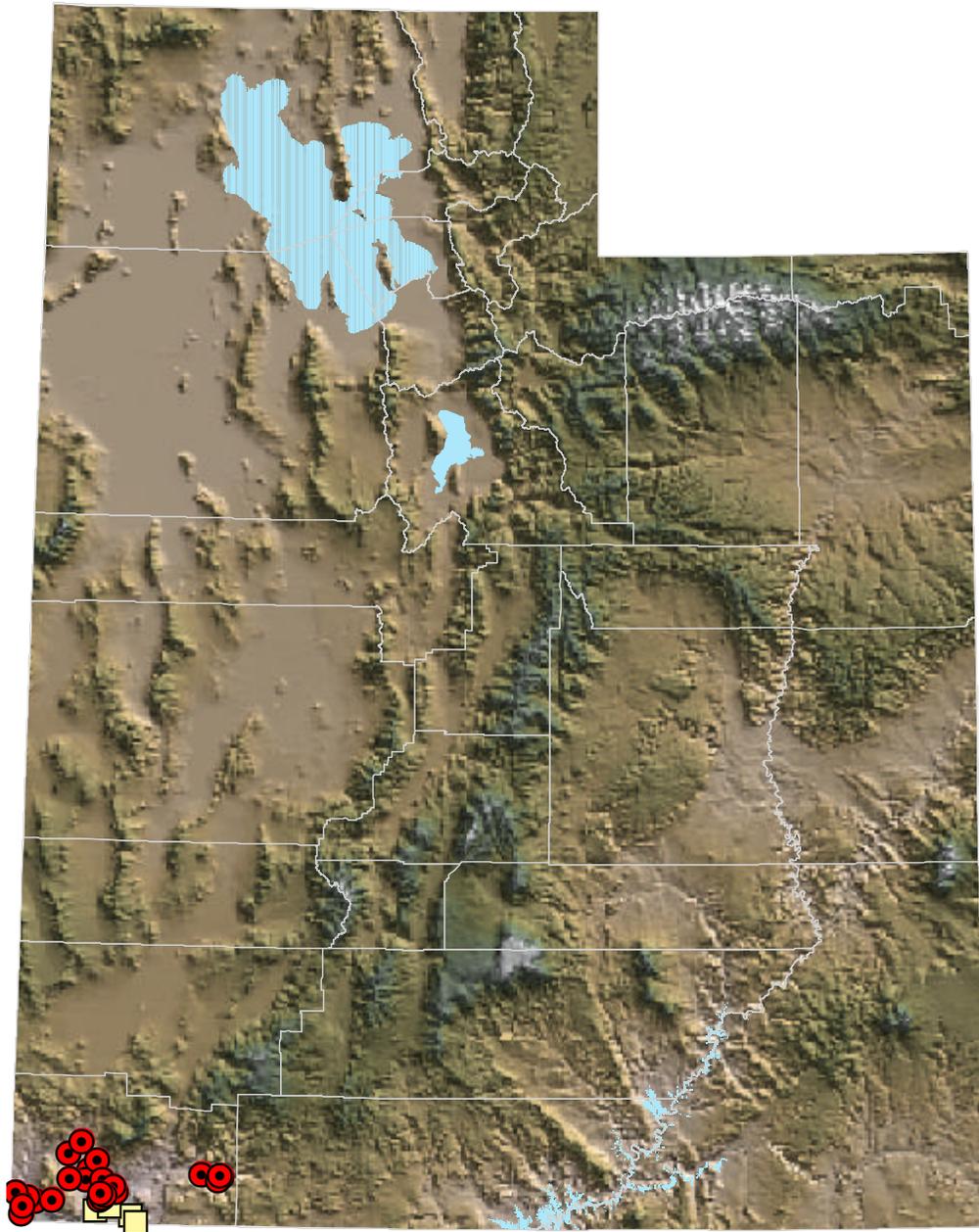


Figure 38. Distribution of the western banded gecko (*Coleonyx variegatus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Desert Night Lizard
Xantusia vigilis

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Night Lizards (Xantusiidae)

SUBSPECIES: Two subspecies occur in Utah: the yucca night lizard (*Xantusia vigilis vigilis*) and the Utah night lizard (*X. vigilis utahensis*), which is endemic to Utah.

OTHER NAMES: Collins and Taggart (2002) used the common name “desert night lizard” for the type subspecies, *X. vigilis vigilis*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in two limited areas in Utah: southwestern Washington County (Storey 1940, Coombs 1977) and a small area on both sides of the Colorado River in eastern Garfield and Kane counties and western San Juan County (Fig. 39) (Tanner 1957, 1958, Bezy 1982, Bartholomew 1992). Storey (1940) reported finding this species in Washington County “beneath the dead limb of a Joshua tree.” Schwinn and Minden (1980) listed habitats as shrub/brush, Mojave desert, gravel beds or alluvial deposits or rocky areas, in woodrat houses and beneath Joshua tree logs, and desert shrub (saltbush, greasewood, etc.). Tanner (1957, 1958) noted an association with *Yucca* spp. in Garfield and San Juan counties.

The size and trend of populations have not been estimated, and threats to population viability are not known. Because this species appears to be dependent on native desert habitats, urban expansion and development in Washington County may jeopardize populations in that region of the state.

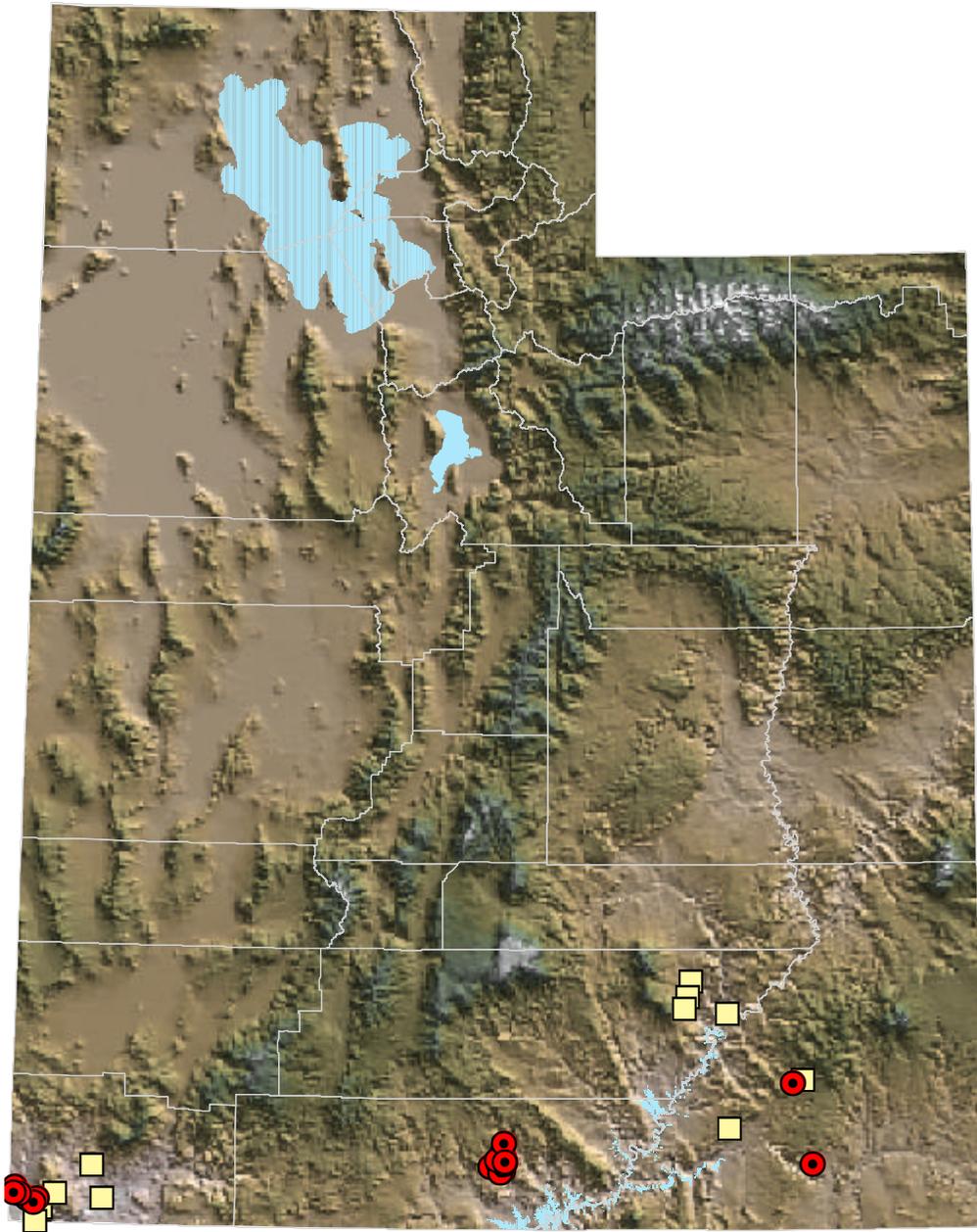


Figure 39. Distribution of the desert night lizard (*Xantusia vigilis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Plateau Striped Whiptail
Aspidoscelis velox

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Whiptails (Teiidae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: This taxon was placed in the genus *Cnemidophorus* until Reeder et al. (2002) found this genus to be polyphyletic and resurrected the genus *Aspidoscelis* for North American species. The taxon *velox* is an all-female, triploid parthenogenic clone. Reeder et al. (2002) noted that there is some evidence that Utah populations include diploid parthenogens and suggested that the name *A. innotata*, the spotted whiptail, would be applied to such populations. An alternative scenario, also proposed by Reeder et al. (2002), is that some populations currently considered to be *A. velox* are misidentifications of the little striped whiptail (*A. inornatus*), a diploid, sexually reproducing species. Unequivocal data that could resolve this issue are currently lacking. Newly discovered striped whiptail populations in northern Utah appear to represent introduced populations of the New Mexico whiptail (*A. neomexicana*). Recognizing that multiple taxonomic entities may be included, the name *A. velox* as used here encompasses all whiptail populations in Utah except those of the tiger whiptail (*A. tigris*) and populations of striped whiptails in the Salt Lake valley.

Early references to *A. velox* (e.g. Woodbury 1928, 1931) used the name *C. gularis*, and common name “Sonoran whiptail lizard” in reference to Utah populations.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This whiptail occurs in the southern and eastern parts of the state, primarily within the Colorado Plateau, but also extending into the southern Bonneville Basin (Fig. 40). Within this area, the species typically inhabits foothills, canyons, and washes in shrub-dominated or pinyon-juniper habitat. Although individuals are sometimes found in somewhat rocky areas, open, unvegetated patches are generally found between shrubs and bunchgrasses.

Population abundance has not been studied and may be difficult to determine considering that above-ground activity is relatively restricted compared to other sympatric lizard species. This taxon is uncommonly encountered in most areas, but in some places it is apparently common. For example, it is reported to be common throughout Natural Bridges National Monument (Persons 1992) and one location in Zion National Park (Woodbury 1928, Wauer 1964). Formal studies of abundance have not been undertaken, however, and assessments of relative abundance could more strongly reflect activity patterns than density. Direct threats to populations have not been documented but could include habitat modification through agriculture and

grazing or the alteration of habitat structure by weed invasions, particularly the reduction or loss of unvegetated zones between shrubs and bunchgrasses caused by the invasion of cheatgrass (*Bromus tectorum*).

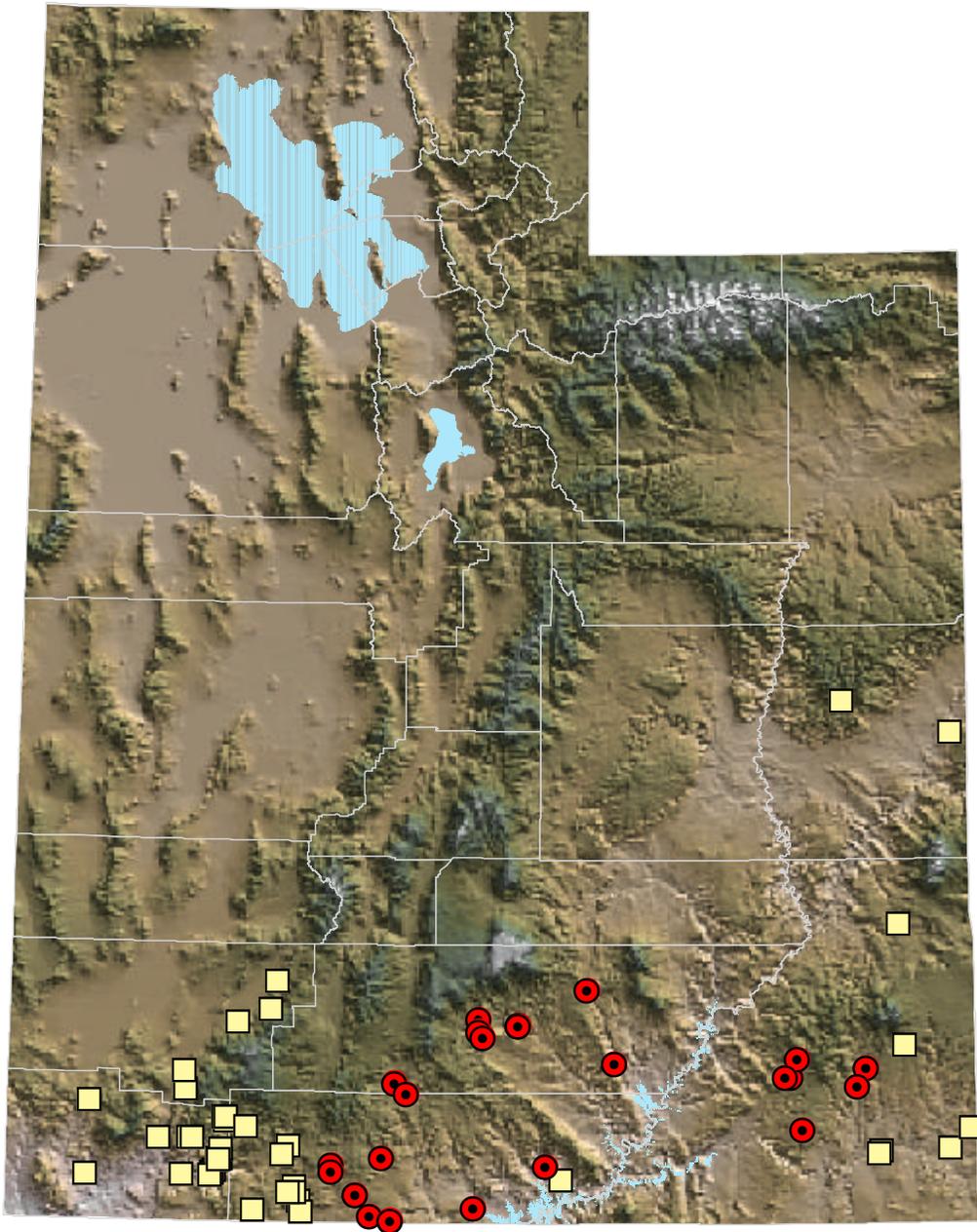


Figure 40. Distribution of the plateau striped whiptail (*Aspidoscelis velox*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Many-lined Skink
Eumeces multivirgatus

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Skinks (Scincidae)

SUBSPECIES: The subspecies occurring in Utah is the variable skink, *Eumeces multivirgatus epiplurotis*. The name *E. multivirgatus gaigeae* has also been applied to this subspecies (e.g., Collins 1990), but most authors (e.g., Mecham 1957, Mecham 1980, Crother et al. 2000) consider *epiplurotis* to have nomenclatural priority (see discussion by Hammerson 1999).

OTHER NAMES: This species was formerly known as *E. gaigeae*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This lizard has been infrequently documented and the status of populations has not been thoroughly studied. Populations have been documented in the Abajo Mountains (Fig. 41), but some authors (Mecham 1980, Stebbins 1985) have hypothesized a broader distribution, including not only all of southern San Juan County but also eastern Kane County. If the distribution extends beyond documented localities it is possible that the western extent of the distribution is limited by the Colorado River. Collection data suggest that populations are restricted to higher elevations and montane habitat. Maslin (1957) found the species occurring at about 8,300 ft. and described the habitat as "...a mesic situation, where yellow pines and scrub oaks formed an open forest. In clearings between trees where loose rocks were present surrounded by grass, either on the banks of the narrow canyon or its floor, one could expect to find skinks. A small temporary stream runs through this canyon" Overgrazing by livestock has the potential to alter the composition of understory plants, which could constitute a threat to population viability.

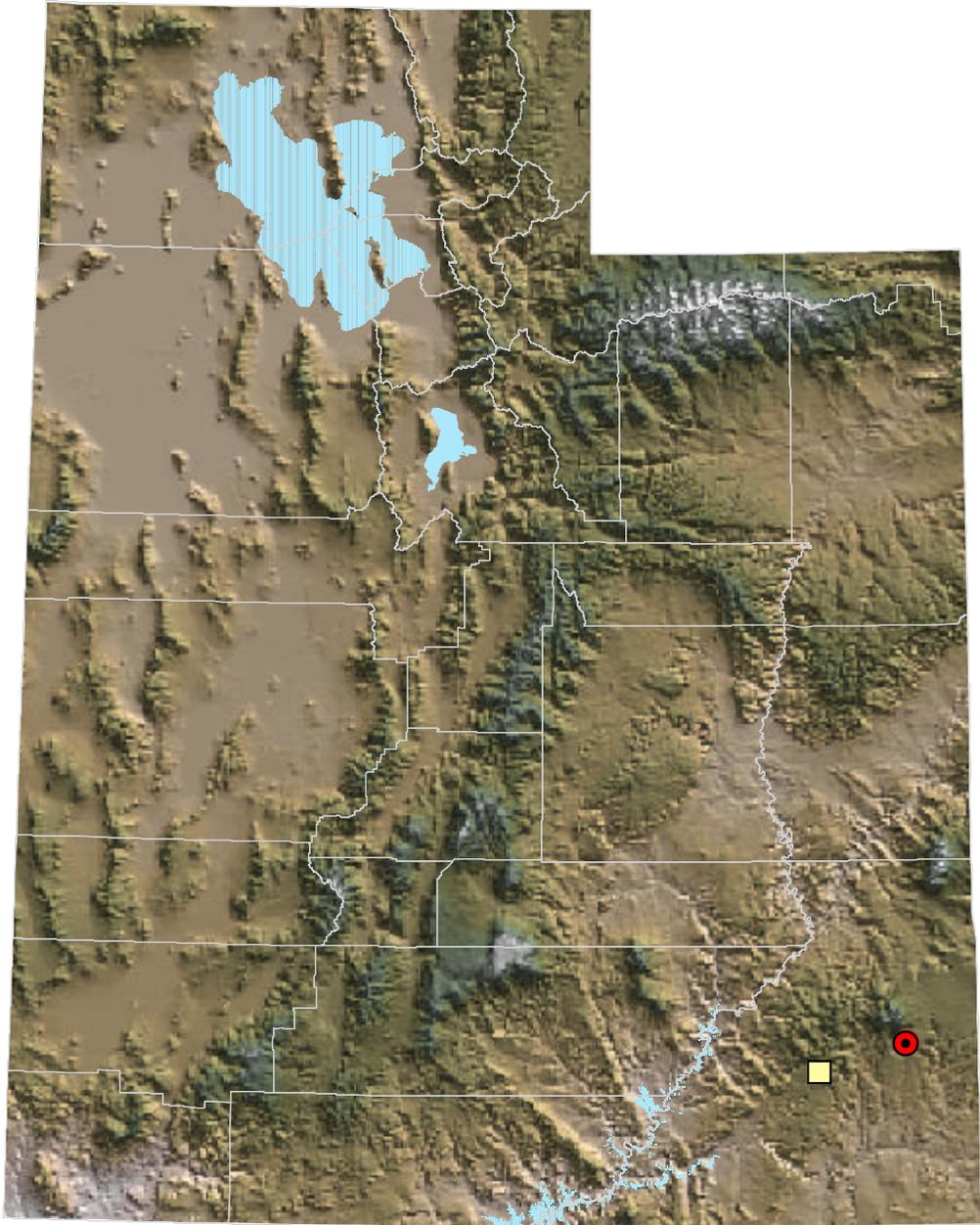


Figure 41. Distribution of the many-lined skink (*Eumeces multivirgatus*). The red circle represents a record since 1983, and the yellow square represents a record before 1983.

Gila Monster
Heloderma suspectum

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Gila Monsters (Helodermatidae)

SUBSPECIES: The subspecies that occurs in Utah is the banded Gila monster, *Heloderma suspectum cinctum*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

In Utah this species occurs only in southern Washington County (Fig. 42). Populations are irregularly distributed and localized, occurring in desert scrub habitats (Beck 1985, Coombs 1977). Dominant plant species in occupied areas include creosote bush (*Larrea tridentata*), sand sage (*Artemisia filifolia*), white bursage (*Ambrosia dumosa*), and blackbrush (*Coleogyne ramosissima*) (Coombs 1977). Populations usually occur in rocky areas, using cavities in basalt and sandstone formations for shelters (Beck 1985).

Abundance is poorly documented, particularly because Gila monsters are infrequently active above ground (Beck 1985, 1990), making the quantification of population size difficult. Highest densities occur in the vicinity of St. George and Paradise Canyon (Coombs 1977, Beck 1985). Populations have declined in this area, primarily as a result of over collection and habitat loss to development (Coombs 1977, Beck 1985).

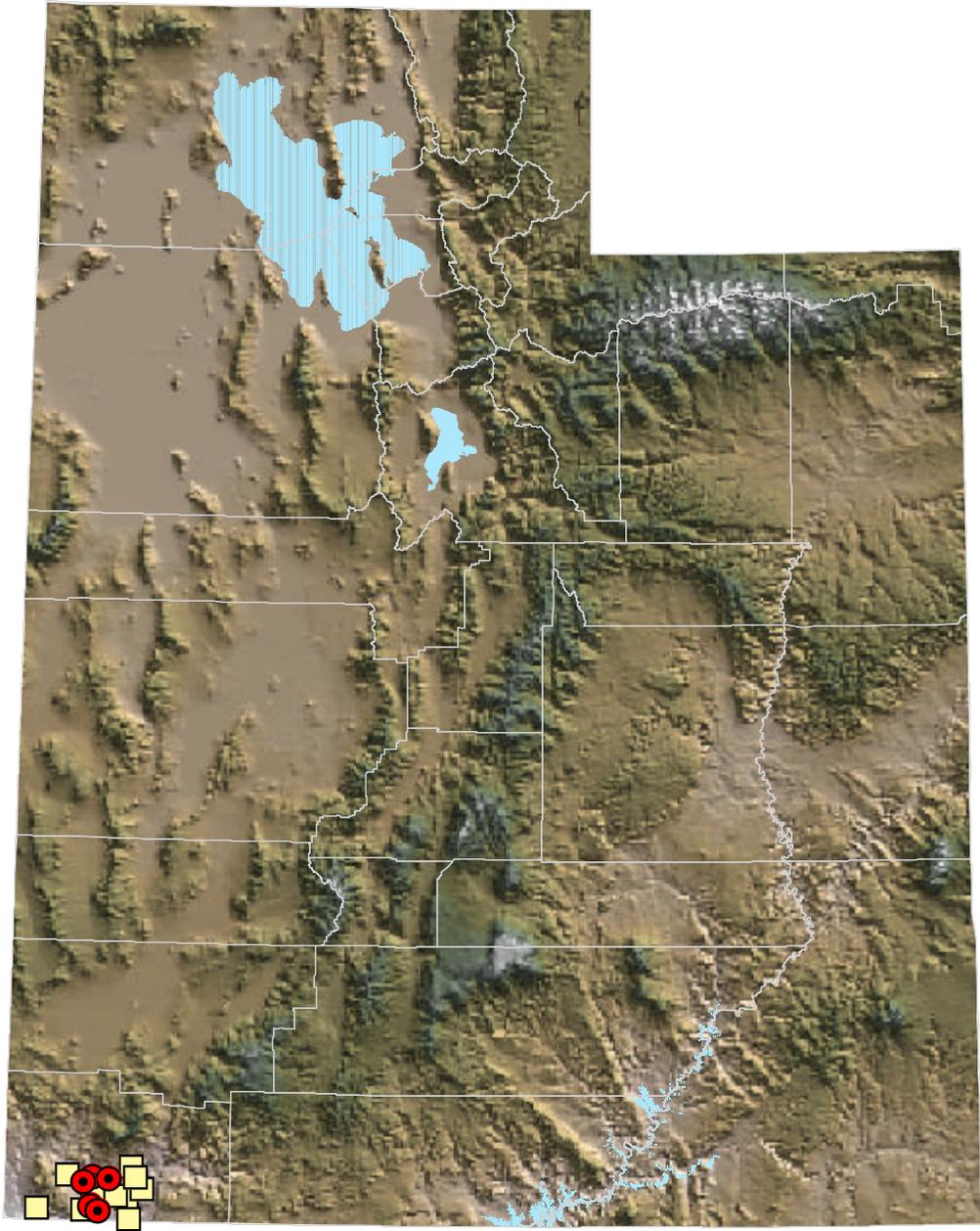


Figure 42. Distribution of the Gila monster (*Heloderma suspectum*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Western Threadsnake
Leptotyphlops humilis

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Slender Blind Snakes (Leptotyphlopidae)

SUBSPECIES: The subspecies occurring in Utah is the Utah threadsnake, *Leptotyphlops humilis utahensis*.

OTHER NAMES: Some authors (e.g., Collins and Taggart 2002) use the common name western blind snake. Tanner (1935) referred to this species as *Siagonodon humilis*, the western worm snake. When the subspecies *utahensis* was described (Tanner 1938), it was given the common name Utah worm snake.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is limited to southwestern Washington County (Fig. 43) (Hahn 1979). Because the species is fossorial, it is generally found in sandy areas, alluvial deposits, and other areas with loose soils (Tanner 1938, Cox and Tanner 1995).

This small, secretive species may be locally common. Cox and Tanner (1995) said that "[i]t appears plentiful" in the limited area of Utah in which it occurs. No studies, however, have generated information that could be used for the estimation of population size or the evaluation of population trends. Threats are not documented, but probably include the conversion of habitat to urban or agricultural uses.

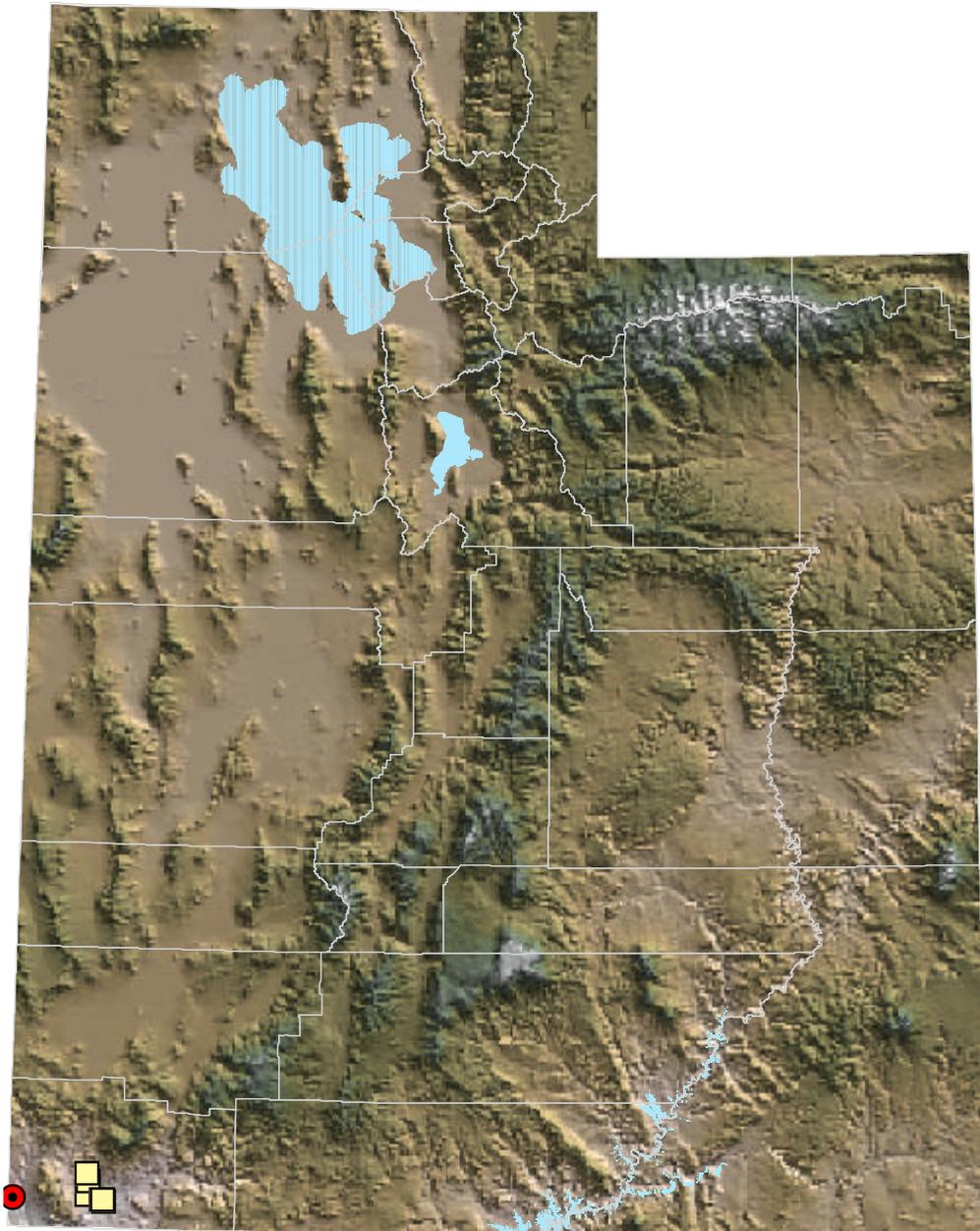


Figure 43. Distribution of the western threadsnake (*Leptotyphlops humilis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Rubber Boa
Charina bottae

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Boas (Boidae)

SUBSPECIES: The northern rubber boa, *Charina bottae bottae*, is the subspecies occurring in Utah.

OTHER NAMES: Rodriguez-Robles et al. (2002) elevated the subspecies *C. bottae umbratica*, which occurs only in California, to species status. If this taxonomic change is accepted, the common name northern rubber boa would be applied to *C. bottae*, which would include populations in Utah.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is known to occur in the northern and central mountains and high plateaus of the state (Fig. 44) (Stewart 1977, Stebbins 1985); most records are from the Wasatch and Uinta mountains (Stewart 1977). The southern-most Utah locality in Garfield County (Stebbins 1985) may represent a disjunct population. This species frequently occupies rocky areas in a variety of mountain shrub, mountain riparian, and forested habitats. Many of the known localities are in canyons.

Population size and trend have not been estimated. This species is generally thought to be uncommon (Schwinn and Minden 1980) because individuals being irregularly and infrequently encountered in most areas, but this perception is partly explained by the species being largely fossorial and difficult to detect. Threats to populations are not known. In some areas, forest management practices could potentially have local effects on distribution or abundance through habitat loss and alteration. Intensive grazing could also affect habitat suitability by impacting riparian vegetation structure and composition. Because some mountain canyons, particularly those along the Wasatch Front, experience high rates of human use, the viability of some populations could be jeopardized by collection, persecution, and road mortality.

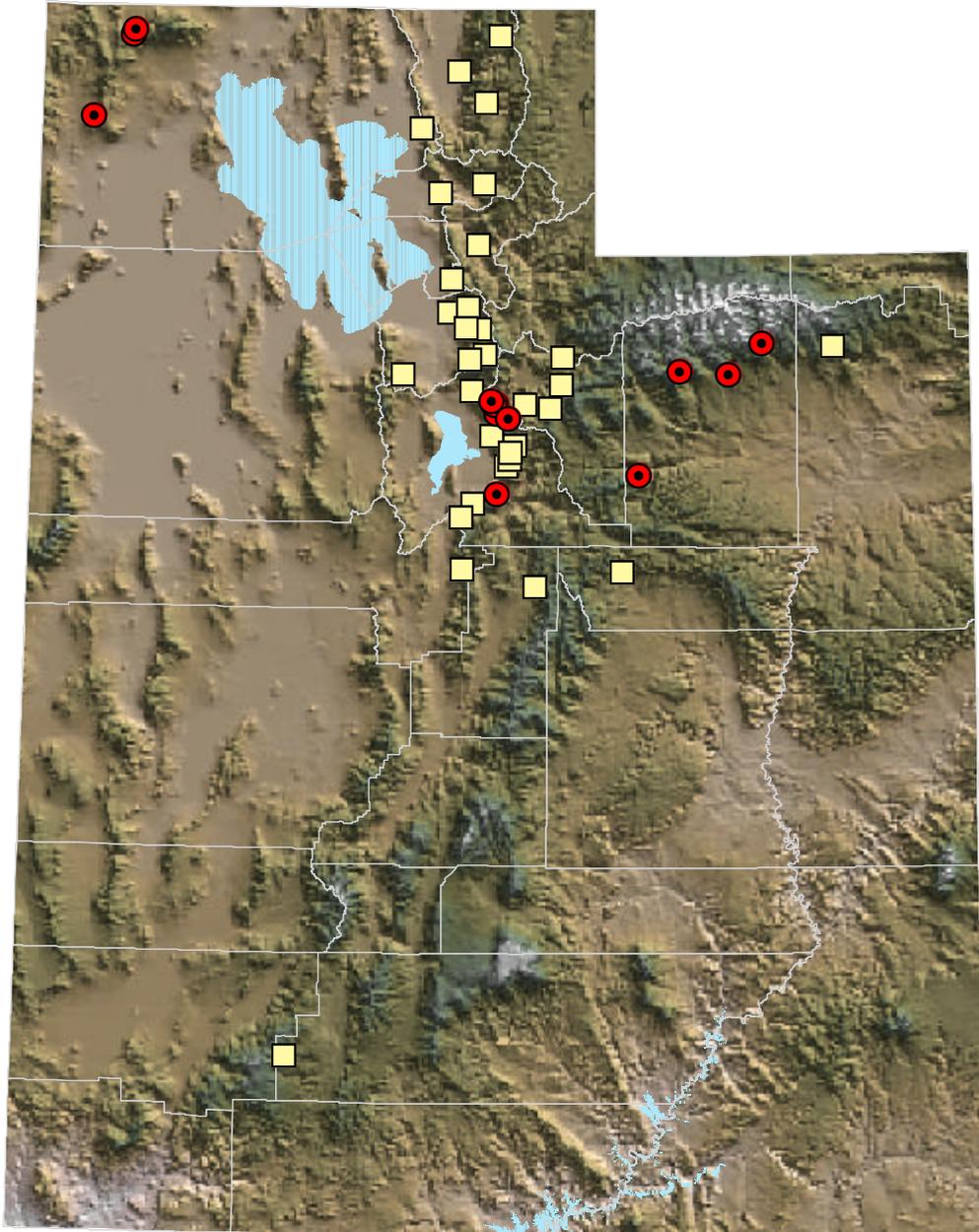


Figure 44. Distribution of the rubber boa (*Charina bottae*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Ring-necked Snake
Diadophis punctatus

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies that occurs in Utah is the regal ring-necked snake, *Diadophis punctatus regalis*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

The Utah range comprises the southern Bonneville Basin and the Virgin River drainage (Fig. 45). Populations occur primarily between 1,750 m and 2,000 m of elevation, although the species has been found as low as 1,300 m and perhaps as high as 2,250 m. Woodbury (1931) commented: "This snake appears to be a mountain form not found in the desert areas. The specimen from Zion Canyon was collected at an altitude of 4,300 feet, but from reports of friends, I am led to believe that it ascends the mountains as high as 7,000 feet or more." Wauer (1964), discussing this species in Zion National Park, wrote: "It is a snake that prefers the cottonwood and oak growths of the canyons, and the aspen and fir habitats of the higher parts of Zion. The ringneck snake may be found in damp places and may be discovered hiding under a rock or log during the daylight hours." In other areas, the species has been detected in relatively xeric conditions in juniper-dominated habitat having a well-developed grass and shrub understory (UDWR unpublished data).

Population size is not known. This species is uncommonly encountered (e.g., Woodbury and Smart 1950, Wauer 1964), but this may be attributable to secretive behavior rather than rarity in many circumstances.

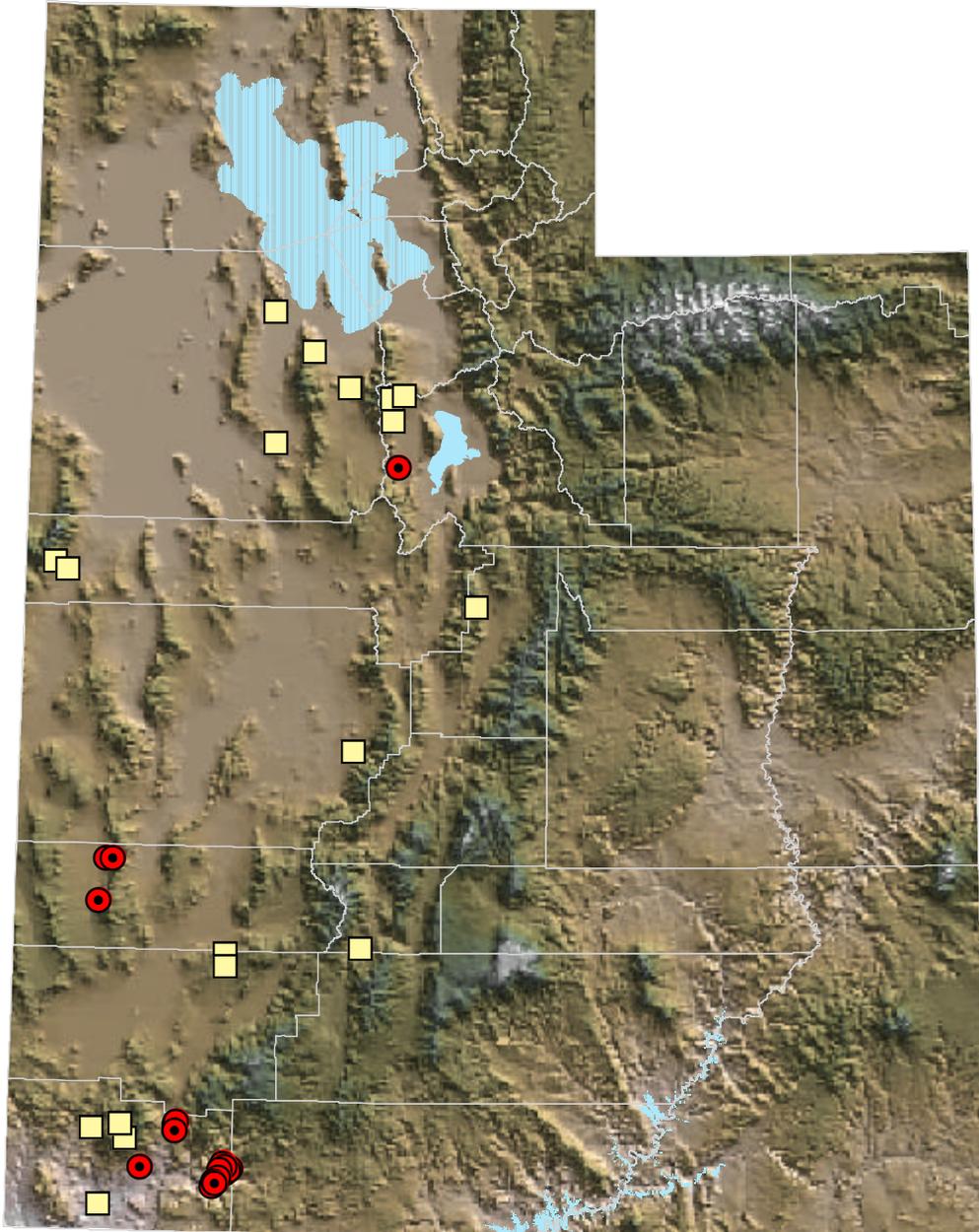


Figure 45. Distribution of the ring-necked snake (*Diadophis punctatus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Western Lyresnake
Trimorphodon biscutatus

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies occurring in Utah is the Sonoran lyresnake, *Trimorphodon biscutatus lambda*.

OTHER NAMES: This species was formerly known in Utah as *Trimorphodon lyrophanes* (e.g., Woodbury 1931, Tanner 1941) and as *Trimorphodon lambda* (Schwinn and Minden 1980), the latter taxon now being recognized as a subspecies.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in Washington County (Fig. 46) where it characteristically occurs in rocky areas and dry washes in desert shrub habitat. This is a secretive and seldom-encountered species, and scant information is available to evaluate the abundance of this species within the Utah range. Tanner (1941) mentioned two specimens that had been collected at the base of a hill: "One specimen had crowded between two flakes of a large rock and the other was found in the soil underneath the same rock." This suggests that the species may be locally common, but the proximity of these individuals could instead be the result of social interactions, having no relationship to abundance. Cox and Tanner (1995) made the comments: "It is considered to be rare ... sightings are unusual ... one of Utah's most obscure and rare snakes." Population trend is unknown. Threats to this species in Utah are not known.

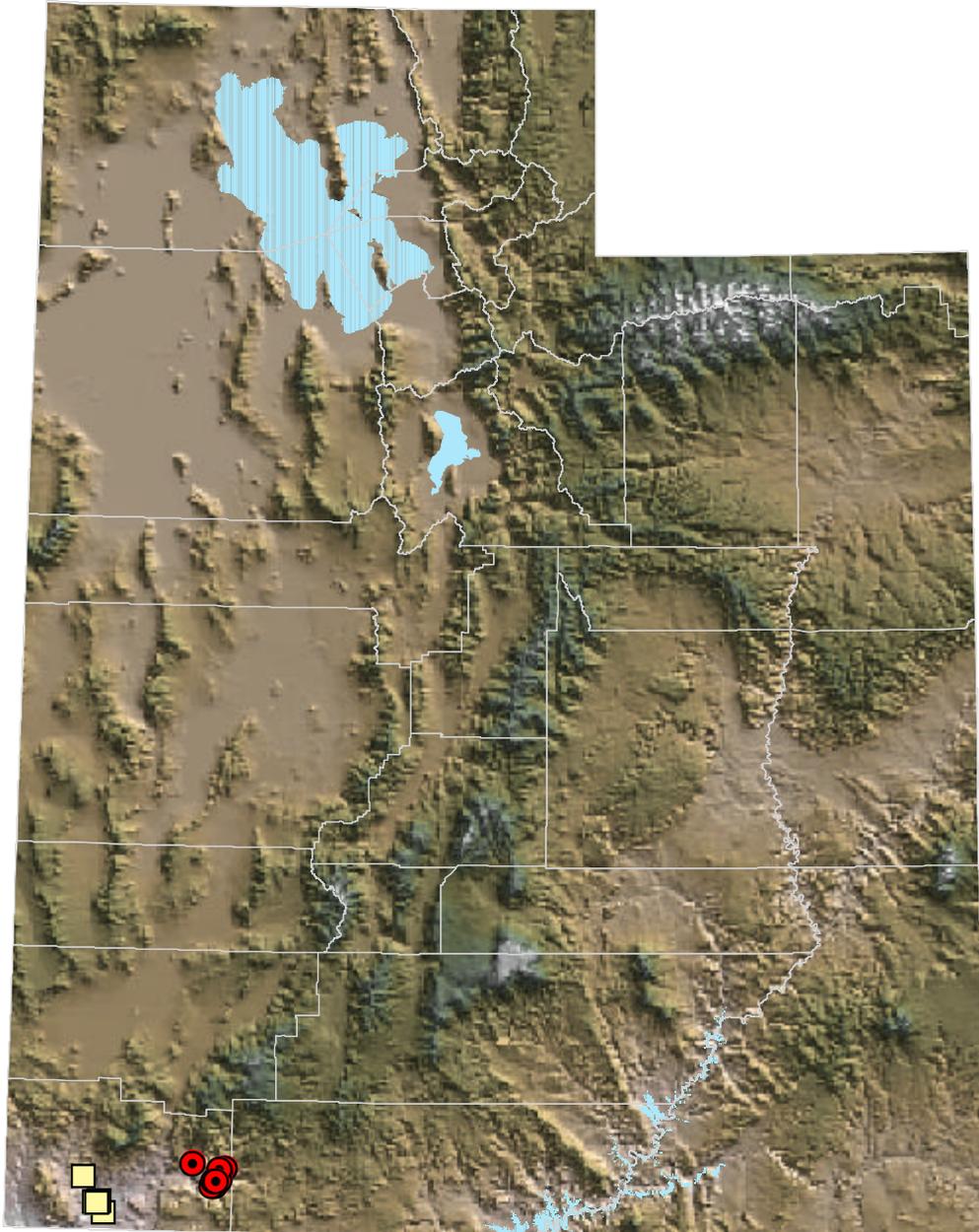


Figure 46. Distribution of the western lyresnake (*Trimorphodon biscutatus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Smith's Black-headed Snake
Tantilla hobartsmithi

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: This species has been called by various names, including *Tantilla nigriceps* (Woodbury 1931), *Tantilla utahensis* (Tanner 1941, 1954), and *Tantilla planiceps* (Cox and Tanner 1995). The common name "southwestern black-headed snake" has been widely used.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the Colorado Plateau of southern and eastern Utah (Fig. 47). Most records fall to the west of the Colorado River except those in Grand County. The species is typically encountered in rocky canyons (Woodbury 1931, Tanner 1954) and is associated with a variety of vegetation, including desert scrub, juniper, and lowland riparian associations.

This is a secretive species, and its abundance in Utah is not well understood. No studies have estimated population size, and population trends are not known. Although it is uncommonly encountered in most areas of its occurrence, the species may be locally common. Tanner (1954) reported: "The spring field trip with the herpetology class into Kane County, east of Kanab, produced 18 specimens of this heretofore rare species." Cox and Tanner (1995) commented: "It should not be considered rare but is seldom seen." Threats to populations have not been documented.

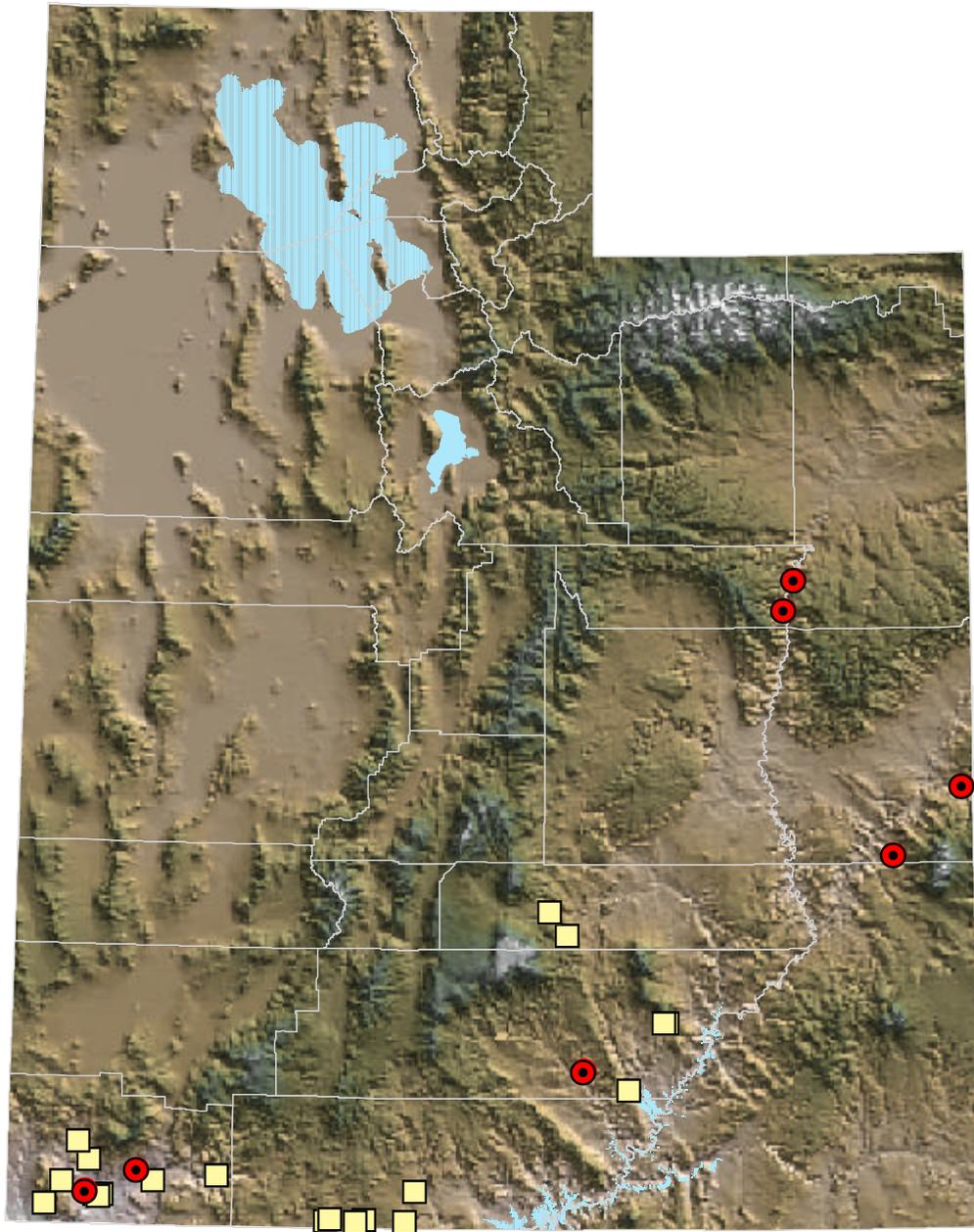


Figure 47. Distribution of the Smith's black-headed snake (*Tantilla hobartsmithi*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Groundsnake
Sonora semiannulata

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: No subspecies are currently recognized.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This snake has been reported to occur in scattered localities in southern and eastern Utah (Fig. 48). Most records are from southern Washington County. Records indicate the presence of disjunct populations in east Kane County. Specimen records from Carbon and Uintah counties suggest the former occurrence of disjunct populations, but no sightings have been documented in these areas for several decades, suggesting these populations may have been extirpated. Within its Utah range, this snake is found at lower elevations in areas with gravelly soils and sparse vegetation, and has also been reported from rocky habitat. Because this is a fossorial species, the presence of loose soils has been cited as a habitat requirement.

This is a notoriously secretive and infrequently encountered species. Because it is difficult to detect, abundance has not been evaluated; no information is available regarding population size or trends. Similarly, threats to population viability have not been identified. Because this species consumes insects, pesticide poisoning is a potential threat in some areas. The reduction in the extent of native habitat in portions of Washington County associated with urban expansion could jeopardize some populations.

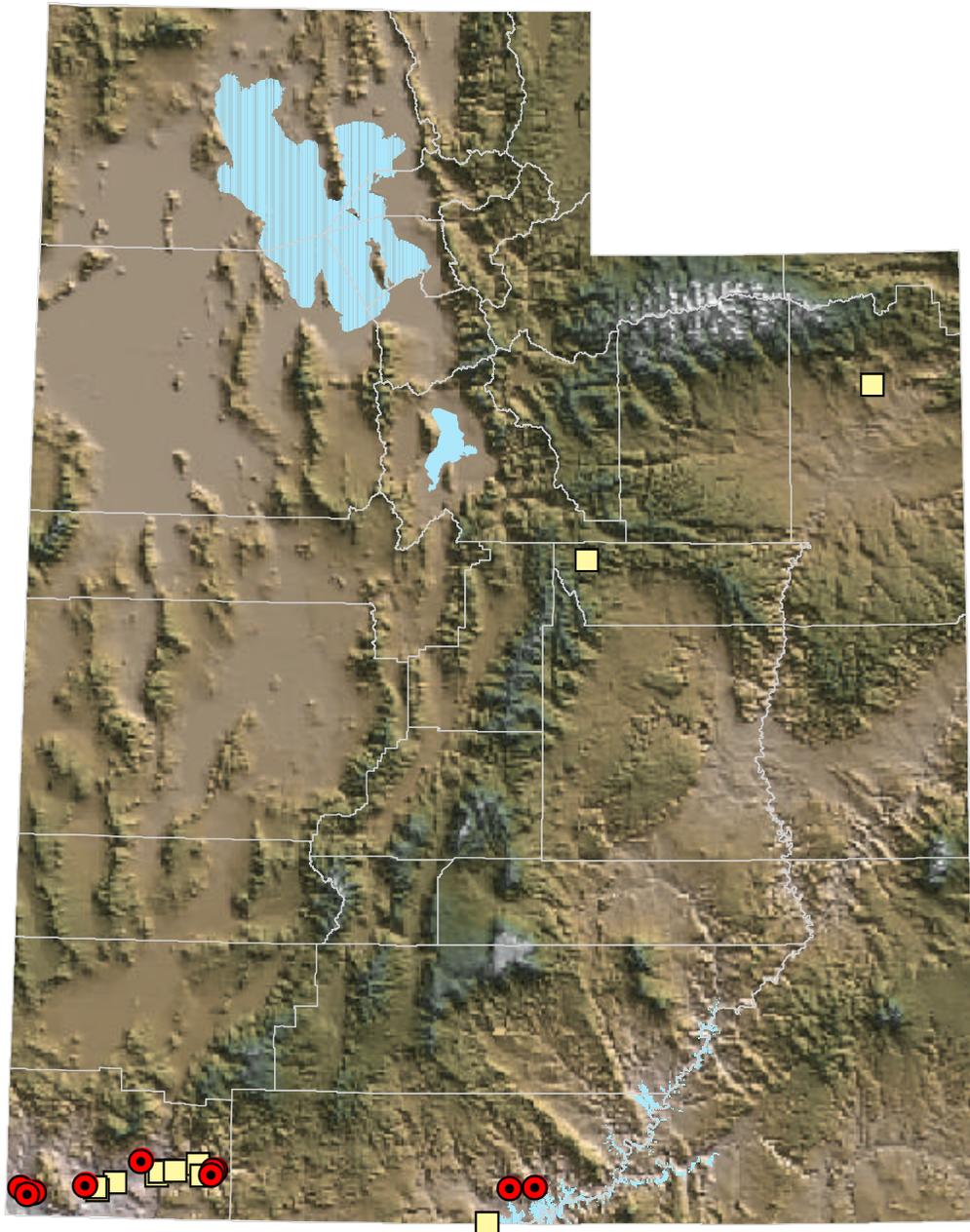


Figure 48. Distribution of the groundsnake (*Sonora semiannulata*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Smooth Greensnake
Opheodrys vernalis

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: No subspecies are currently recognized.

OTHER NAMES: Woodbury (1931) referred to this species as *Liopeltis vernalis*, which he called the grass snake as well as the smooth green snake. Some authors (e.g., Cox and Tanner 1995, Collins and Taggart 2002) recognize the placement of this taxon in the genus *Liochlorophis*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in scattered localities in mountains of central and eastern Utah, including the Wasatch and Uinta Mountains, the Abajo Mountains, the La Sal Mountains, and the East Tavaputs Plateau (Fig. 49). Populations occur in montane habitats, being encountered most frequently in mountain riparian assemblages associated with mixed conifer, conifer-deciduous, and subalpine forests (Cox and Tanner 1995), although meadows, grasslands, and wetlands may also be inhabited (Schwinn and Minden 1980). Populations in Utah are evidently disjunct from populations within the main body of the distribution of this species, which lies to the east of the continental divide.

Because this species is small, cryptically colored, and secretive, individuals are infrequently encountered, and the species is generally considered to be uncommon (Schwinn and Minden 1980, Cox and Tanner 1995). However, population estimates have not been reported. Degradation of mountain riparian habitat from livestock use is a potential threat to most populations. Because cattle tend to concentrate in this habitat type, riparian zones are often subject to heaviest impacts. The alteration or loss of understory vegetation in riparian zones is of particular importance.

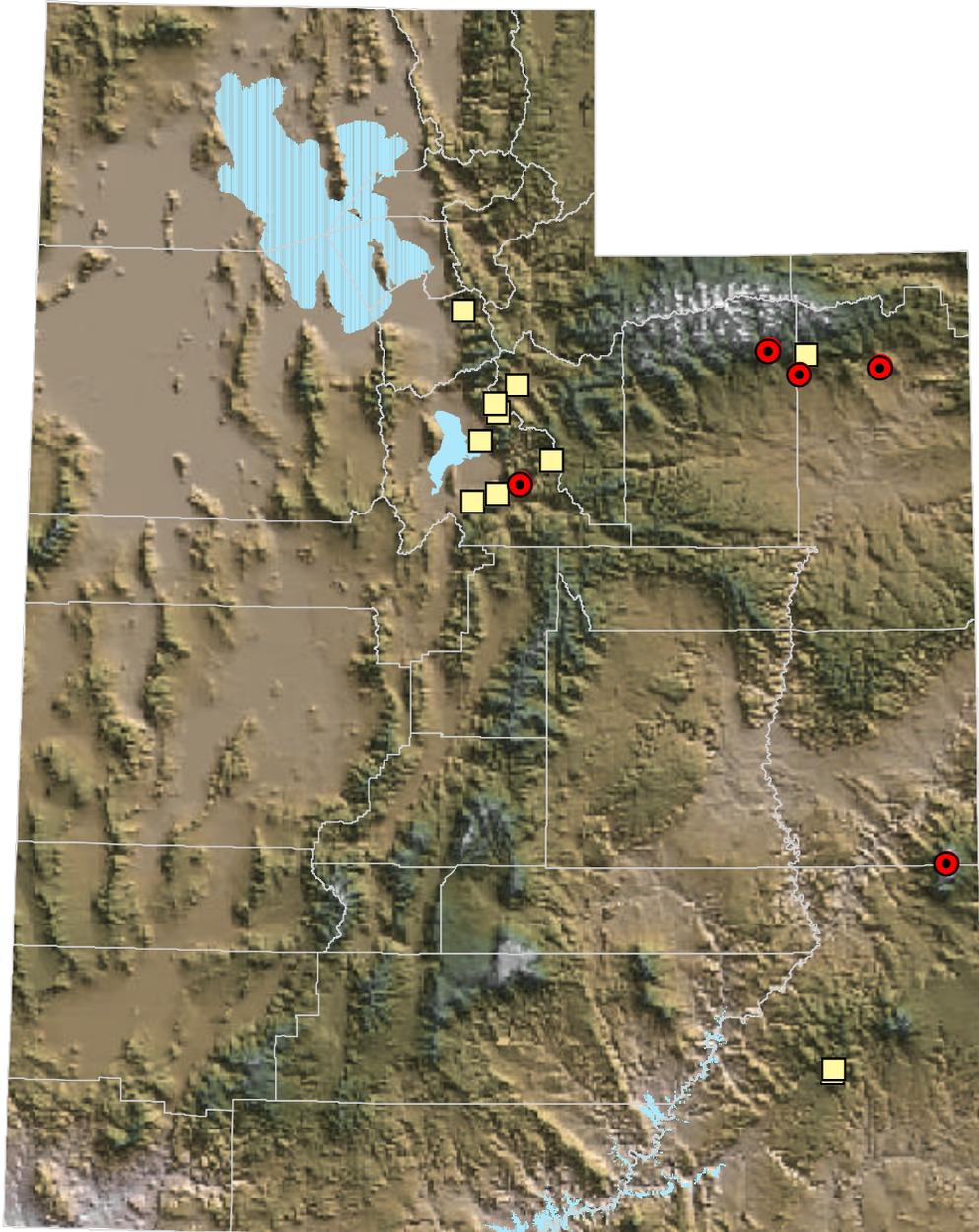


Figure 49. Distribution of the smooth greensnake (*Opheodrys vernalis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Spotted Leaf-nosed Snake
Phyllorhynchus decurtatus

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: No subspecies are currently recognized (McCleary and McDiarmid 1993).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Only one individual has been documented from Utah, found in southwestern Washington County during 1995 (Fig. 50) (Bezette 1995). Tanner (1997) implied that this species has recently colonized southwestern Utah and that its range expansion into Utah "is explainable on the basis of temperature increases." Because of the difficulty of detecting this small fossorial snake, a more parsimonious hypothesis is that it simply escaped detection in Utah until recently rather than having recently spread into the state. Stebbins (1985) noted the preference of this species for sandy or gravelly desert and commented: "Most of its range in the U.S. corresponds closely with the distribution of the creosote bush", which is a dominant species in the vicinity of the Utah collection site (Cox and Tanner 1995).

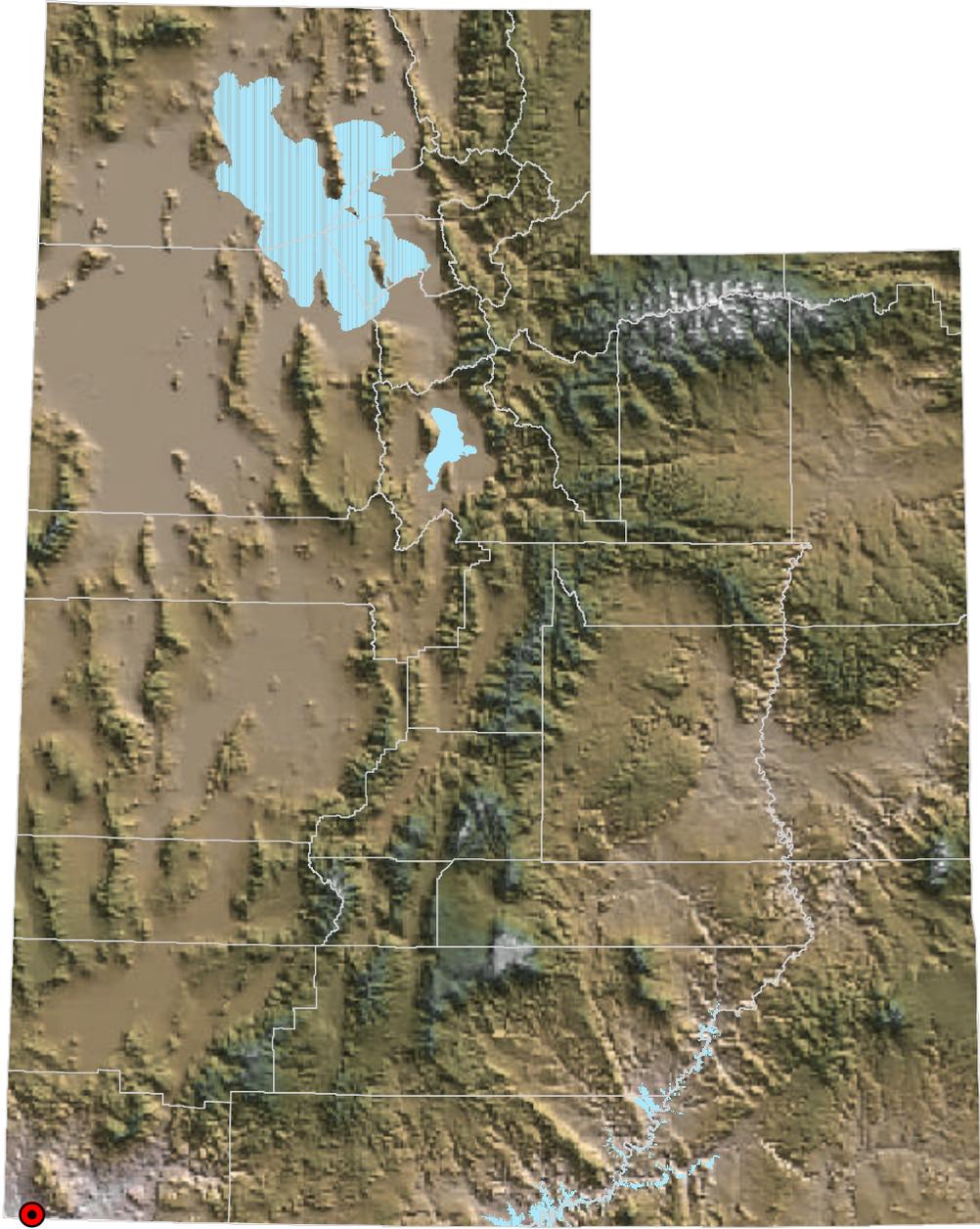


Figure 50. Distribution of the spotted leaf-nosed snake (*Phyllorhynchus decurtatus*).

Western Patch-nosed Snake
Salvadora hexalepis

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies that occurs in Utah is the Mojave patch-nosed snake, *Salvadora hexalepis mojavensis*.

OTHER NAMES: Tanner (1941) used the name *Salvadora grahamiae*, considering the taxon *hexalepis* to be a subspecies.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southern Washington and Kane counties (Fig. 51) where it utilizes low, arid, open habitats, including those dominated by creosote bush (*Larrea tridentata*), sagebrush (*Artemisia* spp.), and desert scrub habitat (Schwinn and Minden 1980, Cox and Tanner 1995).

The size and trend of populations has not been estimated. This species is locally abundant in some areas. Cox and Tanner (1995) commented that this species is "fairly common in the Mojave Desert and transition areas" In Washington County, the primary threat to populations is the loss of habitat to development. Other threats to populations have not been documented.

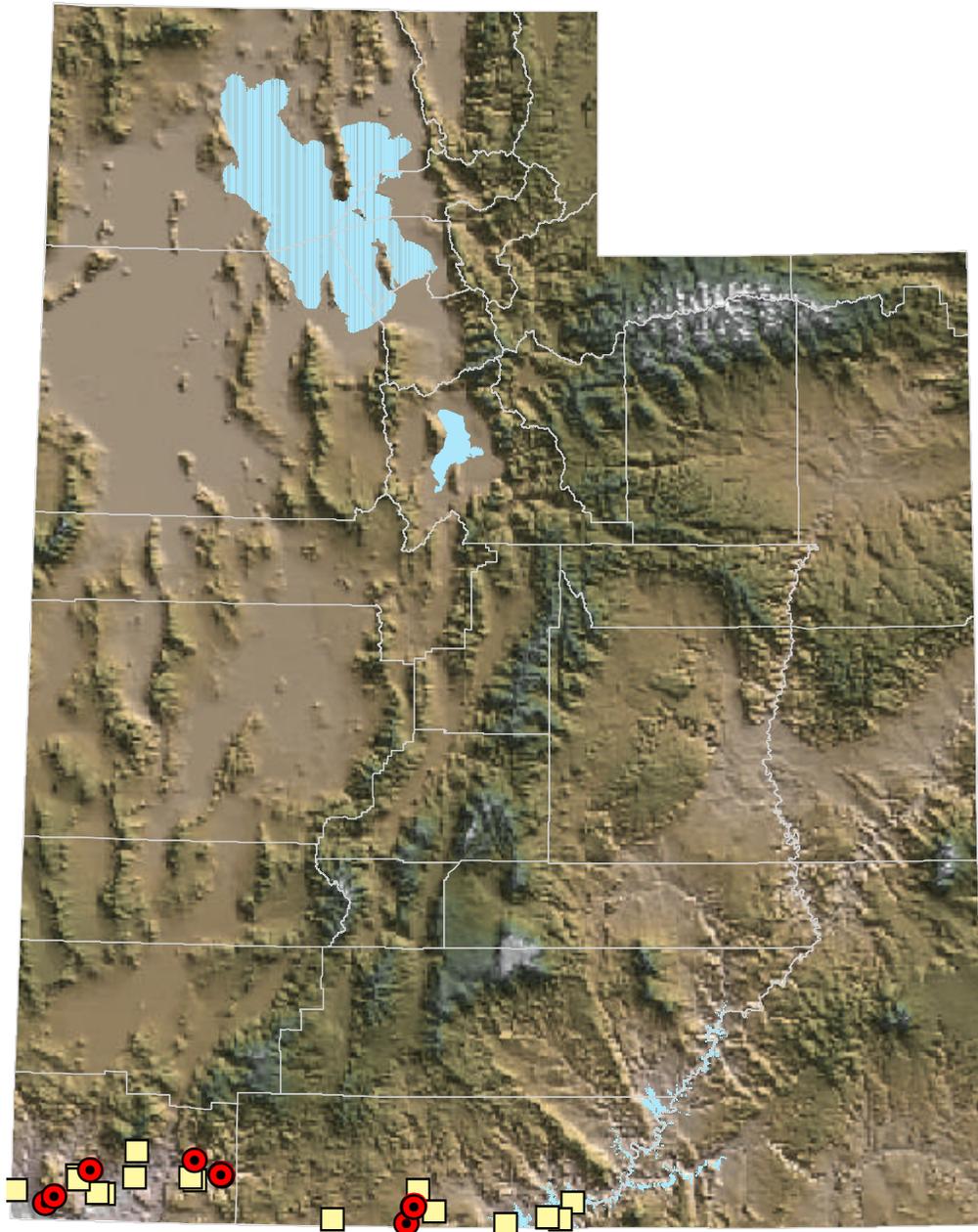


Figure 51. Distribution of the western patch-nosed snake (*Salvadora hexalepis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Coachwhip
Masticophis flagellum

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies that occurs in Utah is the red racer, *Masticophis flagellum piceus*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This snake is restricted to the lower elevations of Washington County (Fig. 52), inhabiting open, arid habitats (Woodbury 1928, 1931, Wauer 1964). Cox and Tanner (1995) mapped a significant extension of the range along the canyons of the Colorado River in south-central Utah, but no specimens or other literature references to locations in that region are known.

No information is available regarding the abundance of this species. The distribution and abundance has likely been affected by urbanization in the vicinity of St. George. Because individuals are active diurnal predators, road mortalities may be especially significant in some areas. Urban expansion and development have also been responsible for the alteration and loss of native habitat in this area.

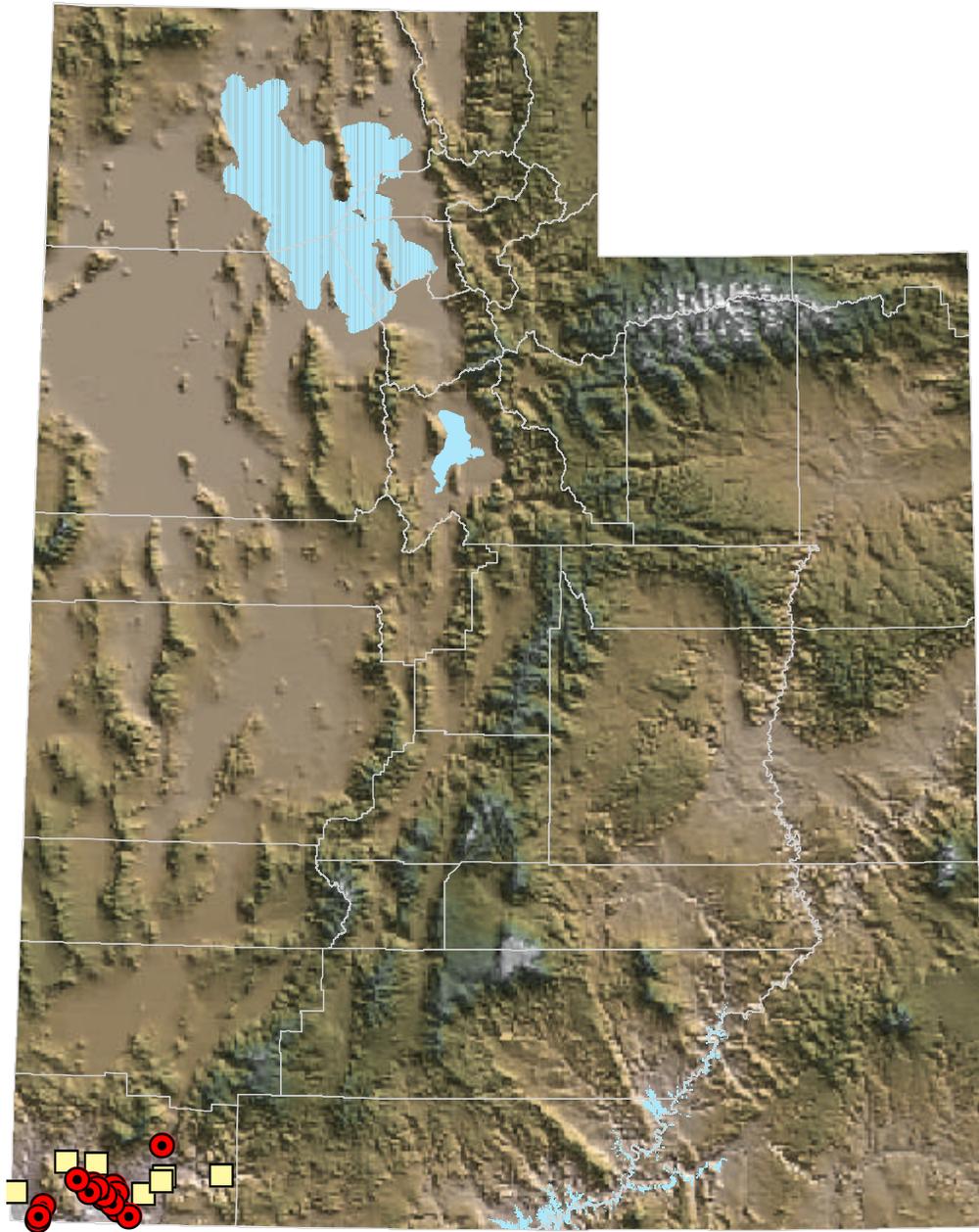


Figure 52. Distribution of the coachwhip (*Masticophis flagellum*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Glossy Snake
Arizona elegans

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: Two subspecies occur in Utah: the desert glossy snake, *Arizona elegans eburnata*, in Washington County and the painted desert glossy snake, *A. elegans philipi*, in Kane and San Juan counties.

OTHER NAMES: Some herpetologists (e.g., Collins and Taggart 2002) elevate subspecies to species status. Under this arrangement the eastern glossy snake (*A. elegans*) and the western glossy snake (*A. occidentalis*) occur in Utah.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southern Washington, southern Kane, southwestern Garfield, and southwestern San Juan counties (Fig. 53) (Dixon and Fleet 1976, Cox and Tanner 1995). Within this area, populations occur in desert scrub habitat, including those dominated by creosote bush (*Larrea tridentata*) or blackbrush (*Coleogyne ramosissima*). Sandy substrates are typical in occupied habitat (Tanner 1954).

Abundance and population trends have not been reported. This is a secretive species that is difficult to detect, making population estimation difficult. In Washington County three individuals were found in a single night along an approximately 1 mile stretch of highway (Tanner 1954). Loss of habitat is probably the principle threat to populations. In Washington County, habitat loss resulting from urban expansion and development is of particular importance. In some areas, off-road vehicle use in sandy areas could result in significant habitat degradation.

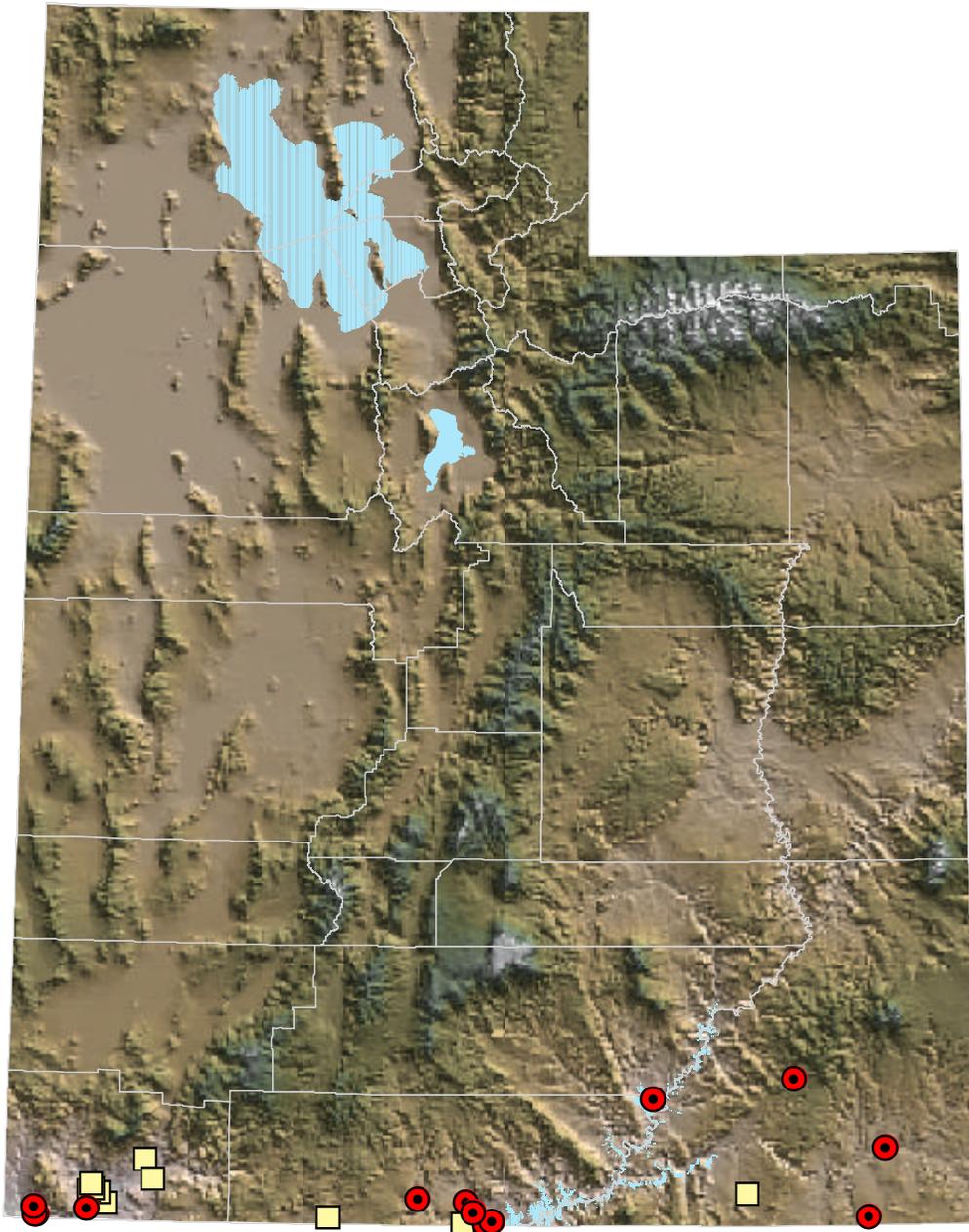


Figure 53. Distribution of the glossy snake (*Arizona elegans*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Common Kingsnake
Lampropeltis getula

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies that occurs in Utah is the California kingsnake, *Lampropeltis getula californiae*. Woodbury (1931) referred to the subspecies that occurs in Utah as *L. getulus boylii*, but this subspecies is no longer recognized.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs across the southern part of Utah, reportedly as far north as Wayne County (Fig. 54). Within this area, diverse habitats are utilized. Woodbury (1931) found this species in Zion National Park "among the wooded groves along the floor of the canyon." Wauer (1964) stated that this species occurs on the farmlands near Zion National Park as well as in "the warmer washes and canyons" of the park itself. Cox and Tanner (1995) commented: "Desert shrub that is adjacent to agricultural areas is an ideal habitat."

This species is locally common within its range in Utah. Wauer (1964) stated that it "is abundant ... to the south and west of Zion National Park." No studies of population size or changes in distribution or abundance have been undertaken and threats to population viability have not been identified.

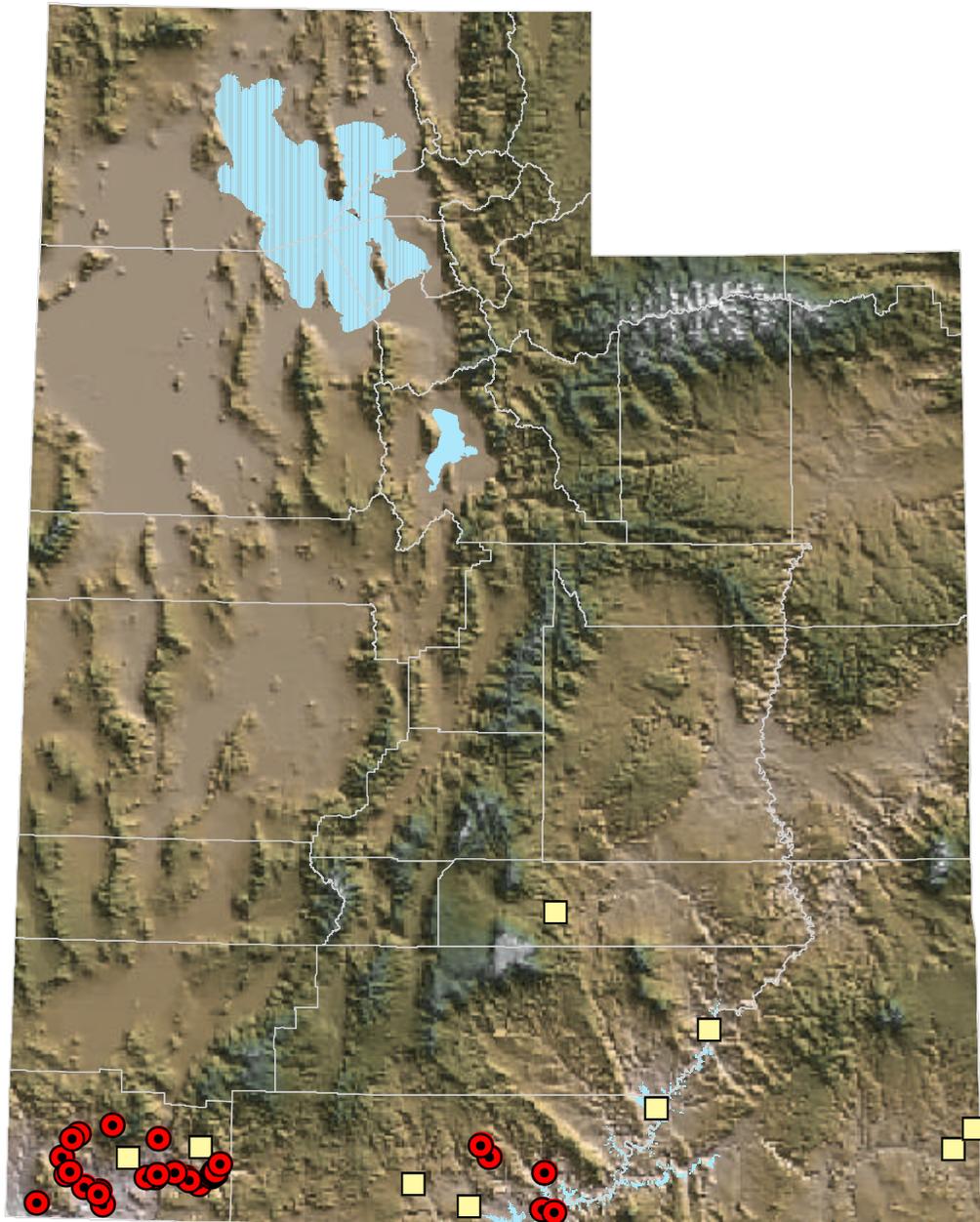


Figure 54. Distribution of the common kingsnake (*Lampropeltis getula*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Sonoran Mountain Kingsnake
Lampropeltis pyromelana

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies that occurs in Utah is *Lampropeltis pyromelana infralabialis*, the Utah mountain kingsnake. Some authorities (e.g., Collins and Taggart 2002) do not consider the taxon *infralabialis* to be valid, instead considering the Arizona mountain kingsnake, *L. pyromelana pyromelana*, to be represented in Utah.

OTHER NAMES: Woodbury (1931) referred to this species as the Arizona king snake.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

In Utah this species ranges from the Pine Valley Mountains in the southwestern corner of the state north through the mountains of the central plateaus as far north as Salt Lake County (Fig. 55). A population in the Wah Wah Mountains is apparently disjunct. Populations occur in rocky habitats, often in canyons having open forests with a well-developed brushy understory. Tanner (1953) mentioned a specimen collected in Washington County that "was moving across the litter under a *Pinus ponderosa*, near a small stream." Tanner and Banta (1966) noted that this species "seems to be quite hydrophilic not extending in the more xeric portions within its range, but restricted to montane island populations where such areas are surrounded by xeric environments." Wauer (1964), writing of this species in Zion National Park, stated: "It does not occur in the canyons of the lower part of the Park, but frequents only the forested slopes of the Kolob. It has not been found below 6,500 feet elevation, and seems to prefer the semidry slopes in the ponderosa-fir forest or the high chaparral-covered areas."

Because this species is secretive and rarely encountered, no attempts to evaluate population size have been successful. The species has apparently been lost from the northern portion of its Utah range (i.e., Salt Lake County and Utah County), perhaps in relation to the urbanization in this region. The relatively narrow range of habitats occupied and patchy distribution make this species vulnerable to habitat loss. Land use activities that would result in the destruction of talus fields, such as mining, or alter vegetation structure, such as timber harvest and grazing, could affect populations. Because this species is valuable to collectors, unregulated, locally-intensive collection would threaten some populations.

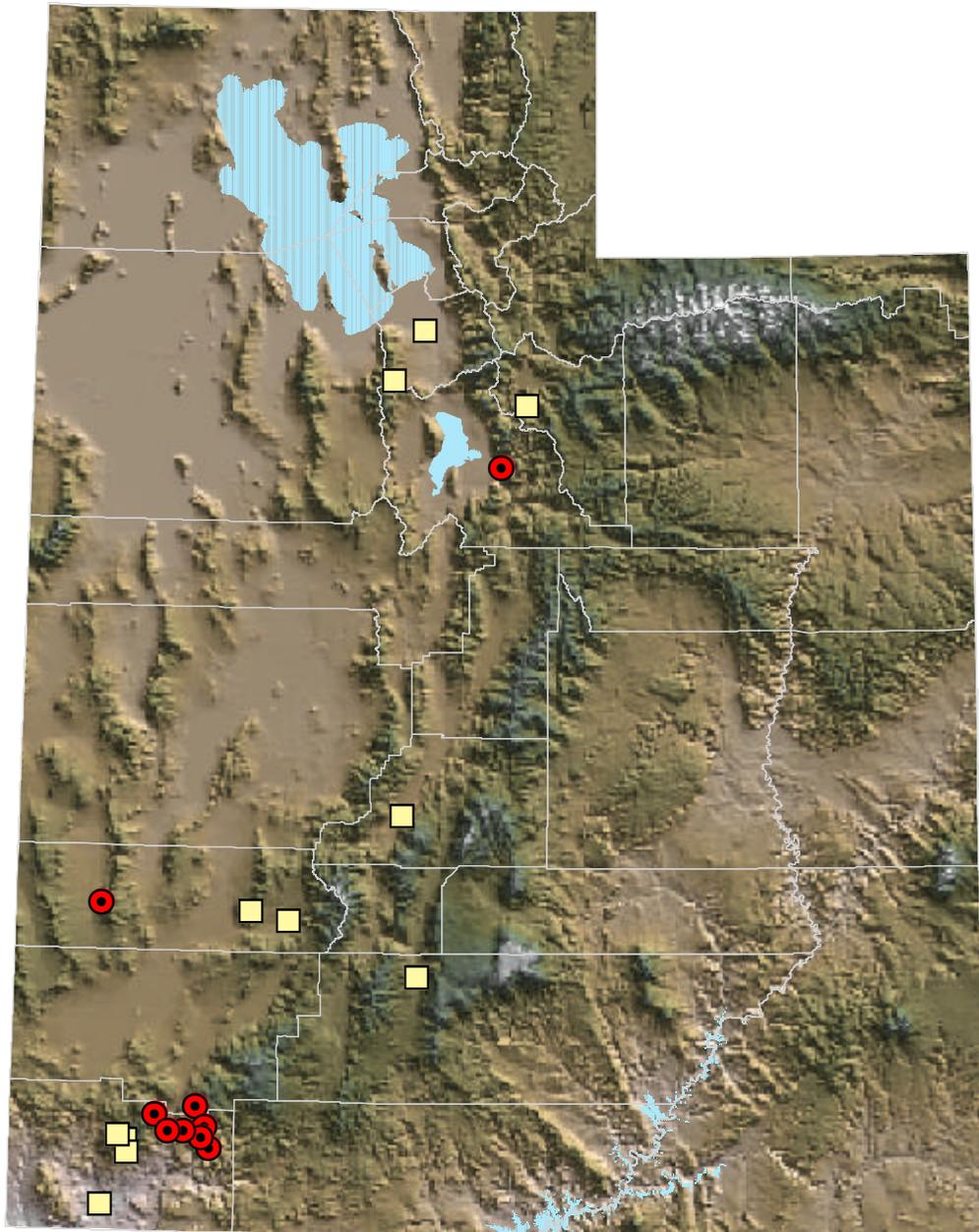


Figure 55. Distribution of the Sonoran mountain kingsnake (*Lampropeltis pyromelana*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Milksnake
Lampropeltis triangulum

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies occurring in Utah is *Lampropeltis triangulum taylori*, the Utah milksnake. Prior to the naming of the subspecies *L. triangulum taylori*, Utah populations were considered to belong to the subspecies *L. triangulum gentilis*.

OTHER NAMES: Formerly the name *L. doliata* was applied to this species (e.g., Tanner and Loomis 1957). Woodbury (1931) called this species the western king snake, the coral snake, and the coral king snake.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species ranges from the southwestern part of the state north through the central high plateaus to the southern part of the Wasatch Mountains and east through the Uinta Mountains and the Uinta Basin (Fig. 56) (Williams 1994, Cox and Tanner 1995). Within this area, a broad range of habitats are used, including open forests, mountain shrub assemblages, sagebrush-dominated habitats (Schwinn and Minden 1980, Cox and Tanner 1995 for summaries), often where the understory vegetation contains a well-developed grass component. Milksnakes may occasionally hibernate at multi-species, communal hibernacula (e.g., Woodbury and Hansen 1950). Individuals have also been found during winter months deep in sandy soil or gravel (Tanner 1941, Hardy 1939).

This species is uncommonly encountered in Utah, which has led some authors to conclude that it is rare (e.g., Tanner 1928, Tanner 1940). No studies, however, have produced estimates of population size nor have changes in distribution or abundance been documented. This species is valuable to collectors and is potentially subject to locally intense collecting pressures. Habitat suitability may also be affected by livestock grazing and other land use activities that result in the alteration of habitat structure, particularly the removal or reduction of understory vegetation.

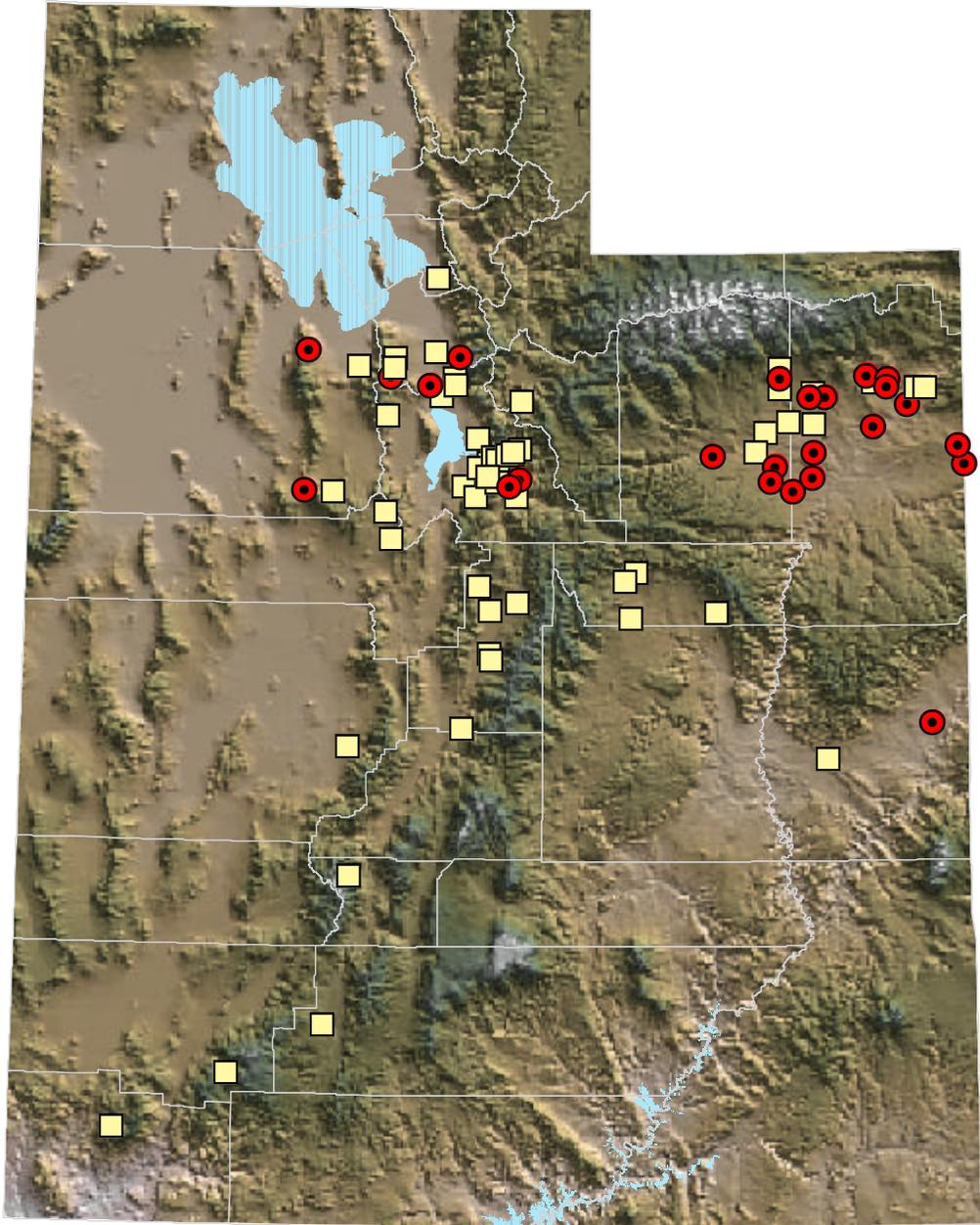


Figure 56. Distribution of the milksnake (*Lampropeltis triangulum*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Cornsnake
Elaphe guttata

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies that occurs in Utah is *Elaphe guttata emoryi*, the Great Plains ratsnake. Woodbury and Woodbury (1942) named the population that occurs in Utah (and some other states) *E. laeta intermontanus*, but this subspecies has not been recognized by recent authors (e.g., Burbrink 2002).

OTHER NAMES: A revised generic placement of this species in the genus *Pantherophis* has been proposed (Utiger et al. 2002). Burbrink (2002) has recommended the recognition of the taxon *emoryi* as a species. If these suggested taxonomic revisions were to be recognized, the scientific name would change to *Pantherophis emoryi*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is found along the Colorado and Green river corridors, generally from Moab, Grand County, north to Dinosaur National Monument, Uintah County (Fig. 57). Notably, populations in Utah (together with populations in western Colorado) are disjunct from the main distribution of this species which lies east of the continental divide (e.g., Woodbury and Woodbury 1942, Stebbins 1985, Hammerson 1999). The distribution of populations within Utah appears to be quite patchy, but this may reflect the secretive behavior of the species. Although little information is available to describe habitat use in Utah, Woodbury and Woodbury (1942) suggests the importance of riparian habitat, and this association is supported by collection data.

Because this is a secretive species and the majority of its Utah range is in a remote region, the species is rarely encountered. No study has been undertaken to evaluate the size of populations or changes in distribution or abundance. No threats to populations have been specifically identified, but changes to the environmental conditions and habitat found in the Colorado River corridor have been pervasive and dramatic in recent decades and includes notable changes to the structure and species composition of riparian tracts. Whether these changes have affected populations is unknown.

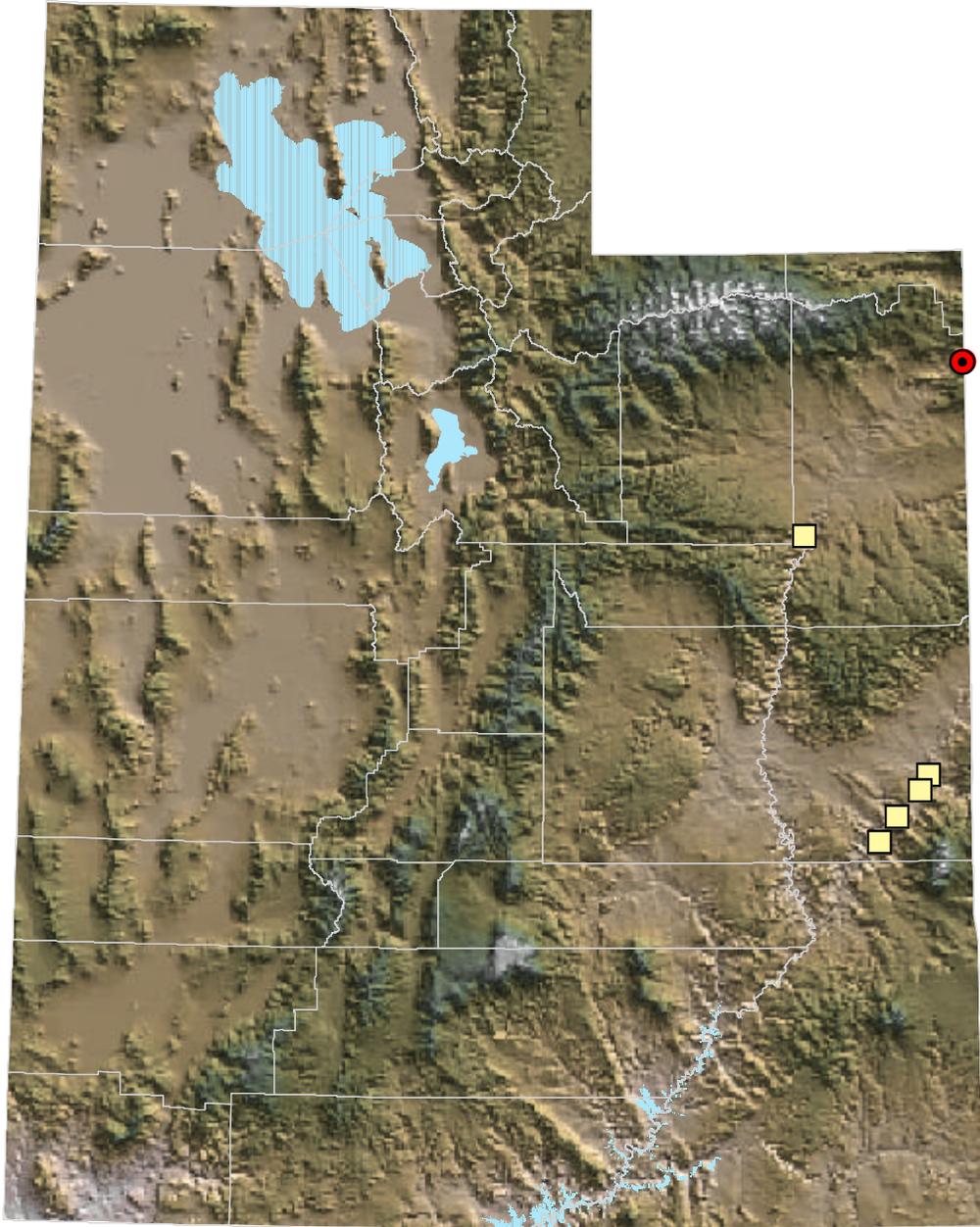


Figure 57. Distribution of the cornsnake (*Elaphe guttata*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Black-necked Gartersnake
Thamnophis cyrtopsis

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Colubrids (Colubridae)

SUBSPECIES: The subspecies occurring in Utah is the western black-necked gartersnake, *Thamnophis cyrtopsis cyrtopsis*.

OTHER NAMES: This species has been referred to as *Thamnophis eques* (e.g., Tanner 1928, Tanner 1940, 1941).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This snake occurs in Grand and San Juan counties of southeast Utah (Fig. 58). Few records of this species are available, and all populations appear to be associated with riparian habitat along streams that are tributaries of the Colorado and San Juan rivers (Tanner 1928, Tanner 1941). No specific characteristics of the habitat in this area have been documented.

The current status of populations is not known. Recent records of the species are not known. However, declines or extirpations of populations have not been documented either. Because this species is associated with riparian habitat, pervasive changes to vegetation composition—notably the replacement of native riparian habitat with salt cedar (*Tamarix* sp.)—and habitat structure in the Colorado River has potentially affected populations.

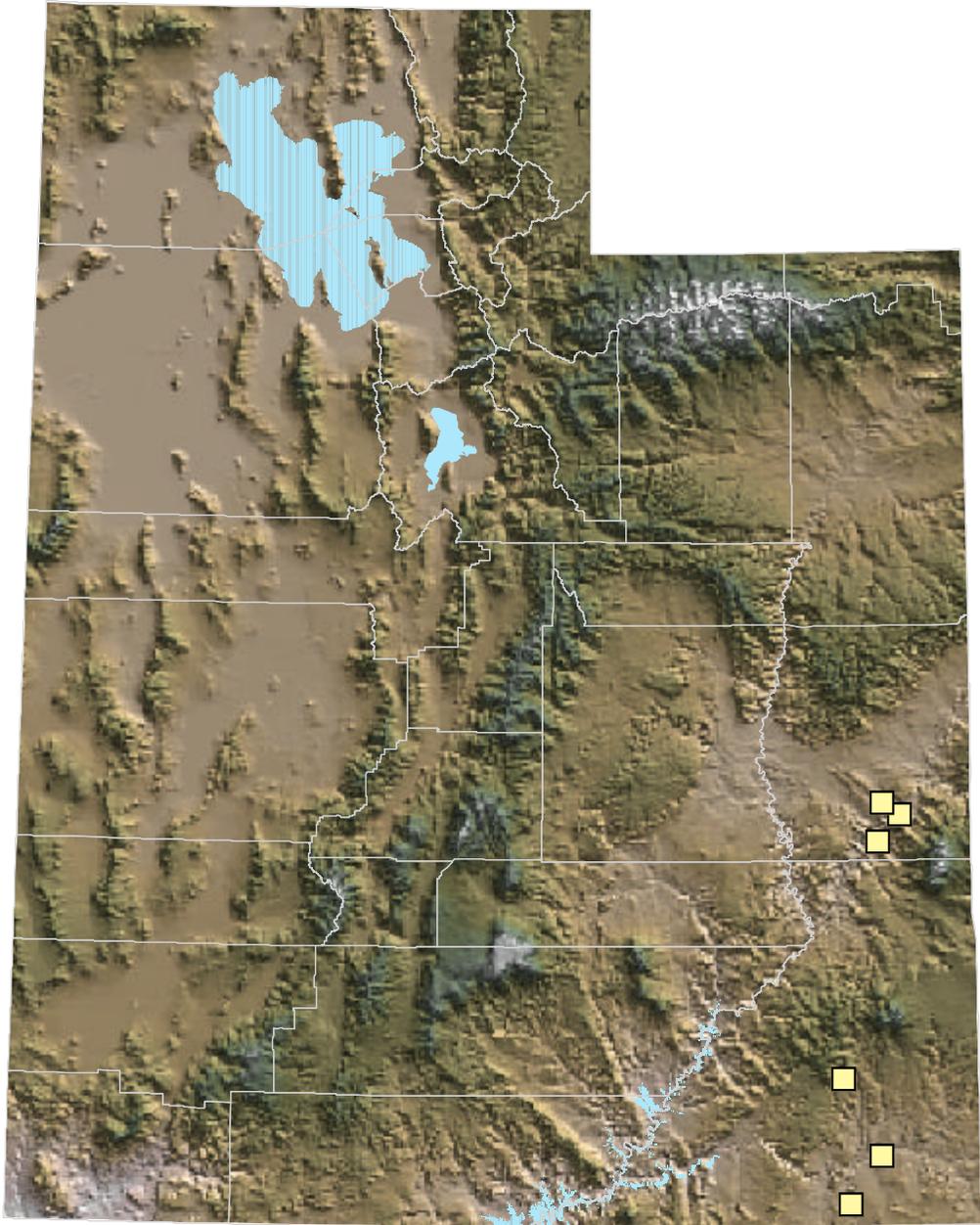


Figure 58. Distribution of the black-necked gartersnake (*Thamnophis cyrtopsis*).

Sidewinder
Crotalus cerastes

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Vipers and Pit Vipers (Viperidae)

SUBSPECIES: The subspecies that occurs in Utah is the Mojave Desert sidewinder, *Crotalus cerastes cerastes*. However, subspecies are weakly distinguished, and their recognition is questionable (Crother et al. 2000).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southwestern Washington County (Fig. 59), being found almost exclusively in sandy, open habitat (Woodbury 1931, Coombs 1977). Dominant plant species in areas of occurrence include creosote bush (*Larrea tridentata*) and sand sage (*Artemisia filifolia*) (Coombs 1977).

This species, limited in distribution and restricted by habitat in Utah, is believed to be uncommon in this state. However, current population size and trend is not known. One of the greatest threats to this species in Utah is habitat loss associated with urban expansion and development. Because this species is associated with sandy habitat, off-road vehicle use could be an important threat to populations in some areas.

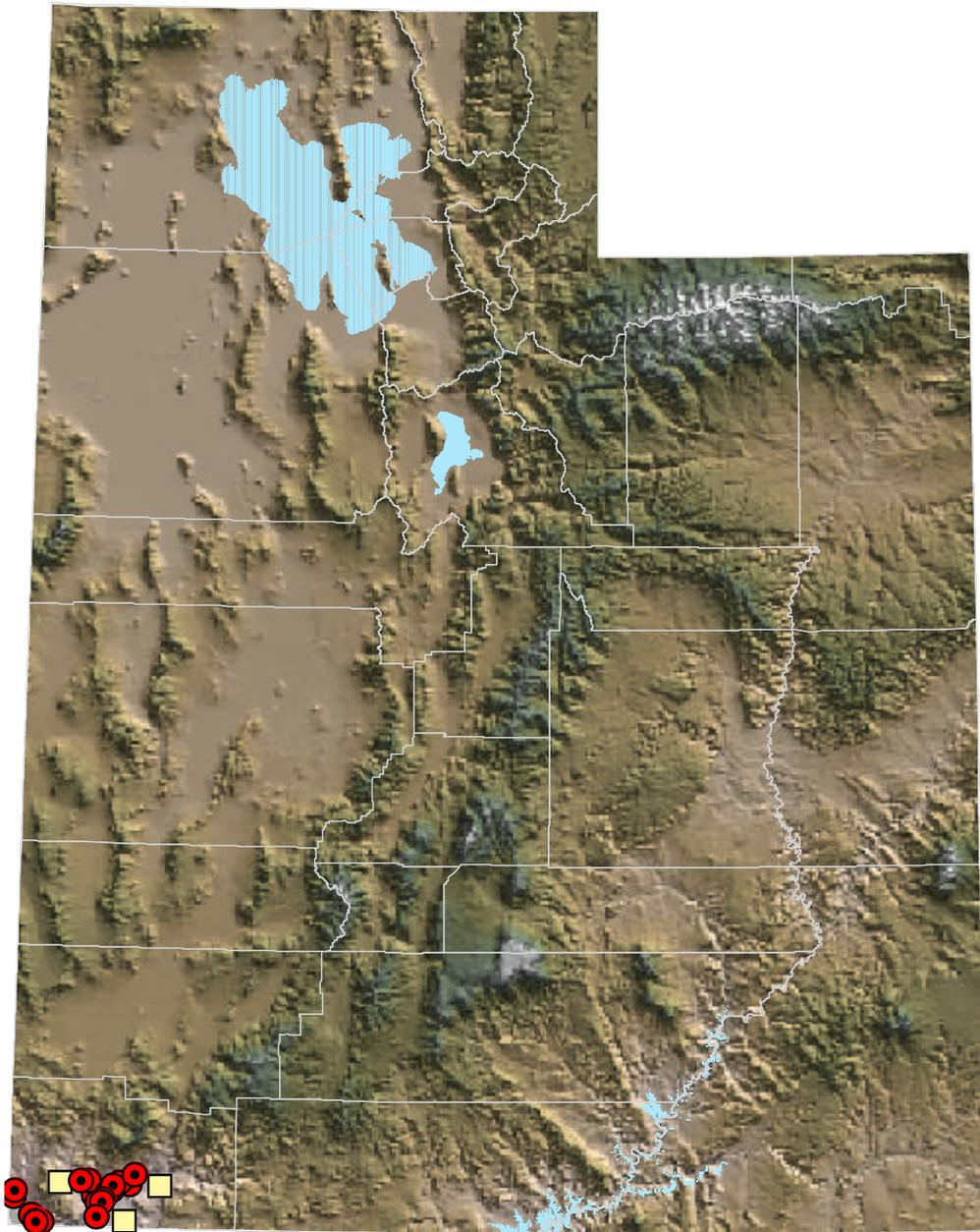


Figure 59. Distribution of the sidewinder (*Crotalus cerastes*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Speckled Rattlesnake
Crotalus mitchellii

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Vipers and Pit Vipers (Viperidae)

SUBSPECIES: The subspecies that occurs in Utah is *Crotalus mitchellii pyrrhus*, the southwestern speckled rattlesnake.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

The species occurs on the Beaver Dam Slope of southwestern Washington County (Fig. 60) (Tanner 1960, Coombs 1977, McCrystal and McCoid 1986). Coombs (1977) estimated the area occupied by this population on the Beaver Dam Slope to be about 5 square miles. The eastern extent of the Beaver Dam Wash population may be limited by elevation; Fridell et al. (1998) considered the elevational limit to be 2,100 m. This snake is strongly associated with rocky terrain, and vegetation within the occupied area includes desert scrub, creosote bush-bursage, and other xeric plant associations (Tanner 1960, Coombs 1977, Schwinn and Minden 1980, Cox and Tanner 1995, Fridell et al. 1998).

No rigorous population estimates have been produced. Coombs (1977) expected the Beaver Dam Slope population to comprise less than 150 individuals. Population trend is unknown. Threats to population viability may include habitat degradation, but the effects of changes to vegetation composition and structure on populations has not been studied. Collection and illegal killing are likely to be responsible for the removal of some individuals from populations, but the degree to which this is detrimental at the population level is not known.

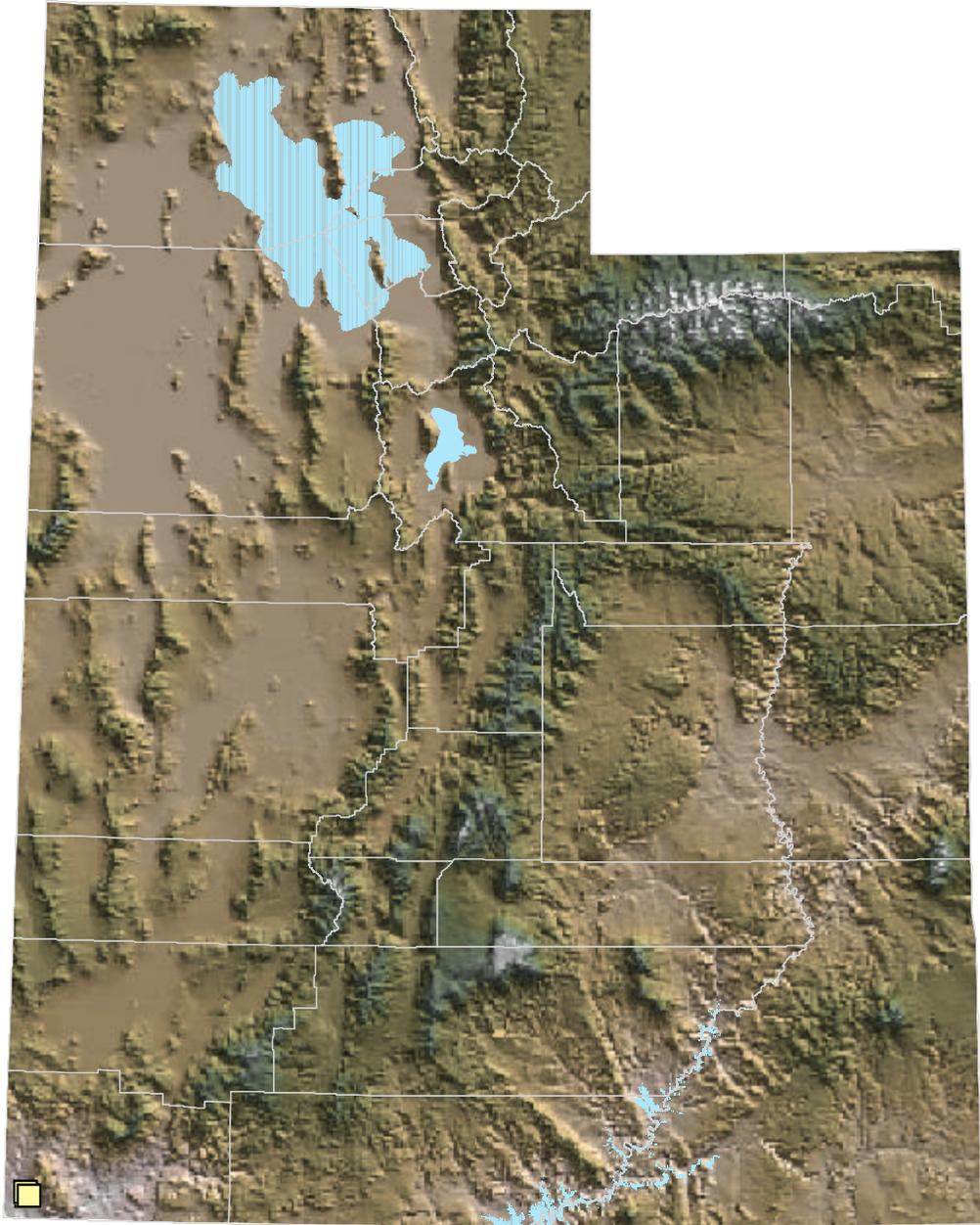


Figure 60. Distribution of the speckled rattlesnake (*Crotalus mitchellii*).

Mojave Rattlesnake
Crotalus scutulatus

TAXONOMY AND NOMENCLATURE

CLASS: Reptiles (Reptilia)

FAMILY: Vipers and Pit Vipers (Viperidae)

SUBSPECIES: The subspecies that occurs in Utah is the Mojave green rattlesnake, *Crotalus scutulatus scutulatus*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs on the Beaver Dam Slope of southwestern Washington County (Fig. 61) (Coombs 1977, Price 1982, Cox and Tanner 1995). Coombs (1977) wrote: "It inhabits the belt of Joshua trees up to the 3,500 foot (1067 m.) level. The habitat type is mainly Joshua trees, creosote bush, burrow [sic] brush and cholla cactus types, often associated with a very rocky surface. Few have been observed below the Joshua tree line in the flats." Schwinn and Minden (1980) considered the species to be associated with gravelly or rocky soils and sparse vegetation, such as desert shrub (saltbush, greasewood, etc.), and Joshua tree associations. Cox and Tanner (1995) stated: "This is a species with a very restricted habitat, occurring only in the Mojave Desert portion of the state It doesn't venture very high onto the nearby foothills. [It occurs] in the creosote and Joshua tree habitats"

No estimates of population size have been made. Coombs (1977) reported this species to be uncommon, noting the paucity of specimens. The population trend is not known. Over collection, persecution, and habitat degradation are likely to be the most important threats to the Utah population (Coombs 1977).

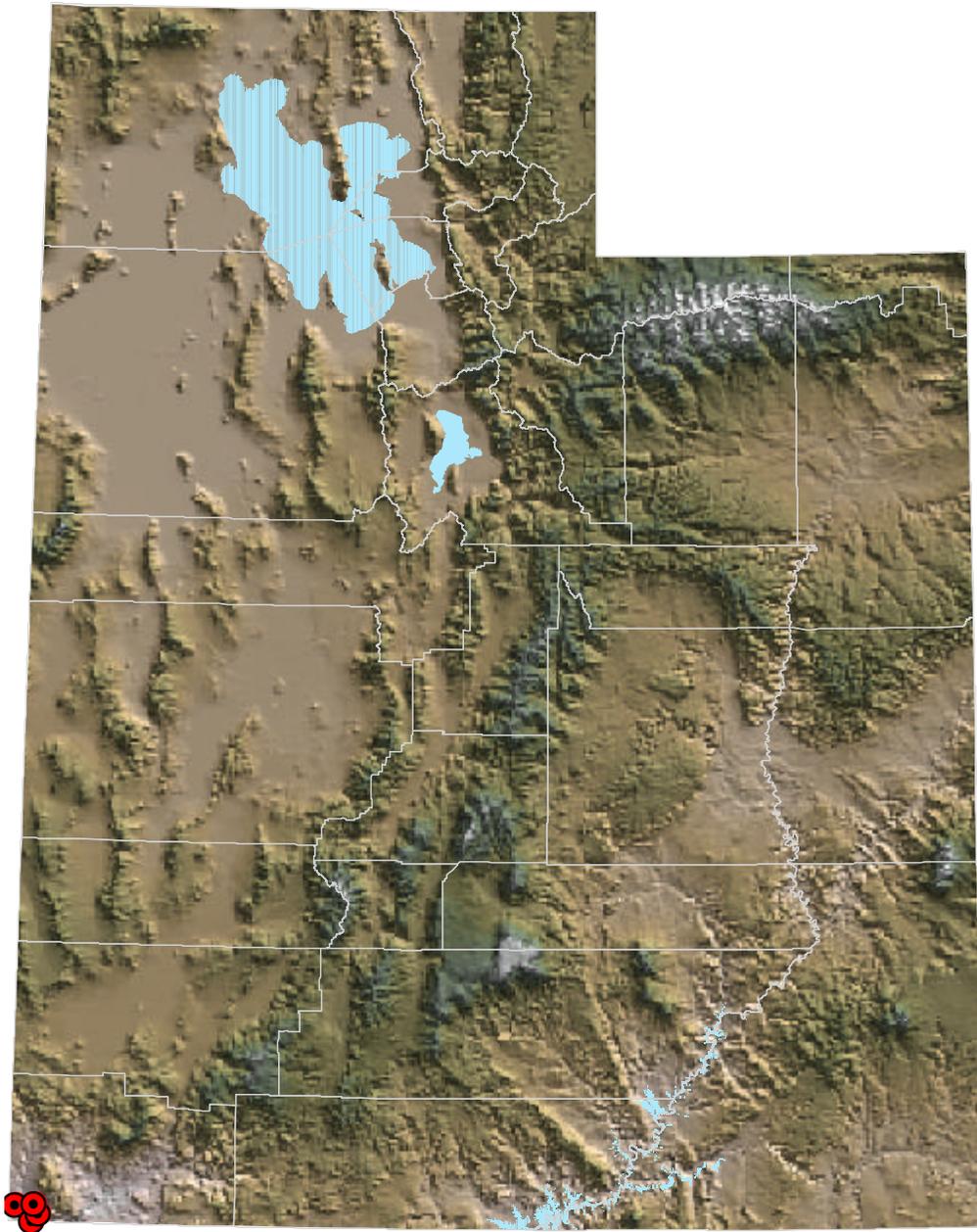


Figure 61. Distribution of the Mojave rattlesnake (*Crotalus scutulatus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Birds

American White Pelican
Pelecanus erythrorhynchos

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Pelicans (Pelecanidae)

SUBSPECIES: This species is monotypic.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species currently nests in Utah only on Gunnison Island (Box Elder County) in the Great Salt Lake. Formerly it also nested on Hat Island (Tooele County), Egg Island (Davis County), and Rock Island (Box Elder County), all in the Great Salt Lake, and on Bird Island in Utah Lake (Fig. 62) (Utah County). Adults nesting on Gunnison Island forage in wetlands throughout the northern half of the state. Primary foraging areas include wetlands, reservoirs, and rivers occurring around the Great Salt Lake and Utah Lake. Nonbreeding adults occur throughout the state in large wetlands, lakes, and reservoirs.

The size of the breeding population fluctuates substantially. During the 1990s the breeding population averaged about 13,000 adults, fluctuating between about 9,000 and 20,000 adults (Parrish et al. 2002). Human disturbance to the nesting colony is a threat to breeding success. Evans and Knopf (1993) stated: "Highly sensitive to human intrusions into nesting colony, which cause desertions, especially during courtship and early incubation. Throughout incubation and breeding periods, disturbed parents leave nests, exposing eggs and young to potential temperature extremes and gull predation. Loud and close passes by motor boats and low flying airplanes can cause disturbance. Feeding and loafing flocks are also dispersed by approach of motor boats." They also pointed out that historically this species was shot for sport or trophies and was persecuted because of its fish-eating habits, noting that "Shooting is the greatest single source of mortality reported from band returns" Evans and Knopf (1993) also mentioned: "Tissues of adults and eggs concentrate organochlorine pesticides and mercury." They pointed out that eggshell thinning is correlated with pesticide concentrations, and shells are now almost 10% thinner in western populations than they were in samples taken before 1940. Evans and Knopf (1993) also mentioned the negative effects of changes in water levels, which can destroy breeding and foraging areas.

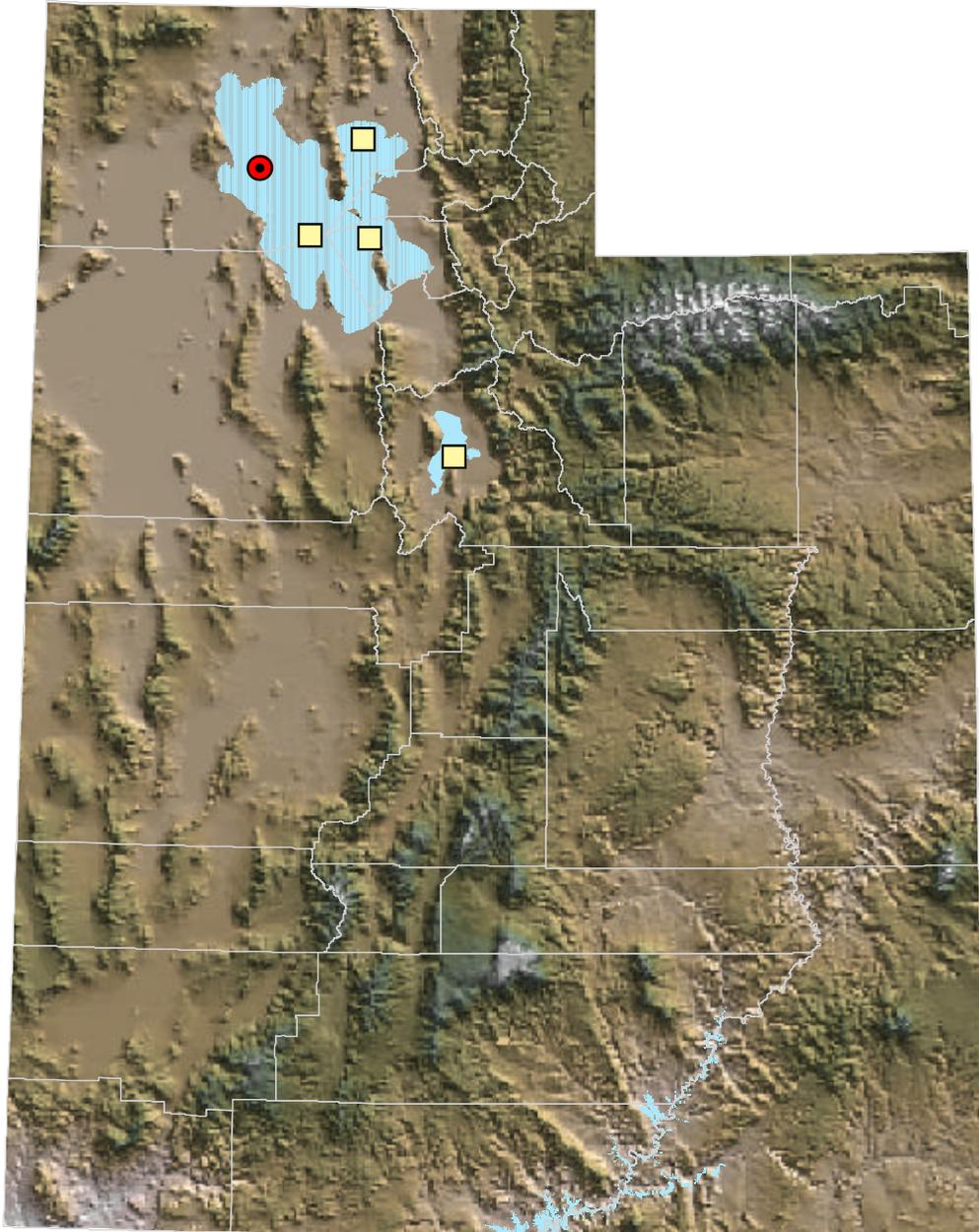


Figure 62. The distribution of nesting sites of the American white pelican (*Pelecanus erythrorhynchos*). The red circle represents the current nesting site and yellow squares represent historical nesting sites.

Bald Eagle
Haliaeetus leucocephalus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Hawks and Eagles (Accipitridae)

SUBSPECIES: The nesting population in Utah represents the subspecies *Haliaeetus leucocephalus leucocephalus*. The wintering population is *H. leucocephalus alascanus* (Behle 1985).

CONSERVATION STATUS DESIGNATIONS

This species was classified as an endangered species by USFWS during 1967 (32 Federal Register 4001), and was subsequently classified as a threatened species under the Endangered Species Act during 1995 (60 Federal Register 35999-36010). The delisting of this species was proposed by USFWS during 1999 (64 Federal Register 36453-36464). This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Although this species is widespread during winter, active breeding sites are few, with one in Emery County, two in Grand County, and one in Salt Lake County. Formerly nesting occurred in at least five other counties: Tooele, Utah, Wasatch, Summit, and Wayne (Fig. 63) (Hayward et al. 1976). Walters and Sorensen (1983) listed only wintering habitats: rivers and streams; lakes, reservoirs, ponds, and sewage lagoons; montane riparian woodlands (including narrow-leafed cottonwood, big-toothed maple, boxelder, river birch, dogwood, alder, willows, etc.); desert riparian woodlands (including Fremont cottonwood, willows, etc.); submontane shrub (including Gambel oak, dwarf maple, and mountain mahogany); croplands; and orchards, shelterbelts, and tree farms.

This species is exceptionally rare as a breeding species; 3 or 4 breeding pairs were present annually during the 1990s. It is fairly common during winter, when an estimated average of 1,243 individuals are present in the state (Gerrard 1983). The breeding population has declined from historical levels (Hayward et al. 1976). This decline has apparently stabilized at 3 or 4 breeding attempts per year. Destruction or alteration of habitat, particularly nesting habitat, may be a threat. All Utah nests are in mature cottonwoods; the loss of any of these stands would be significant. Natural events are of particular importance to the few breeding sites; during the summer of 2002, one nest was blown from its tree during a storm.

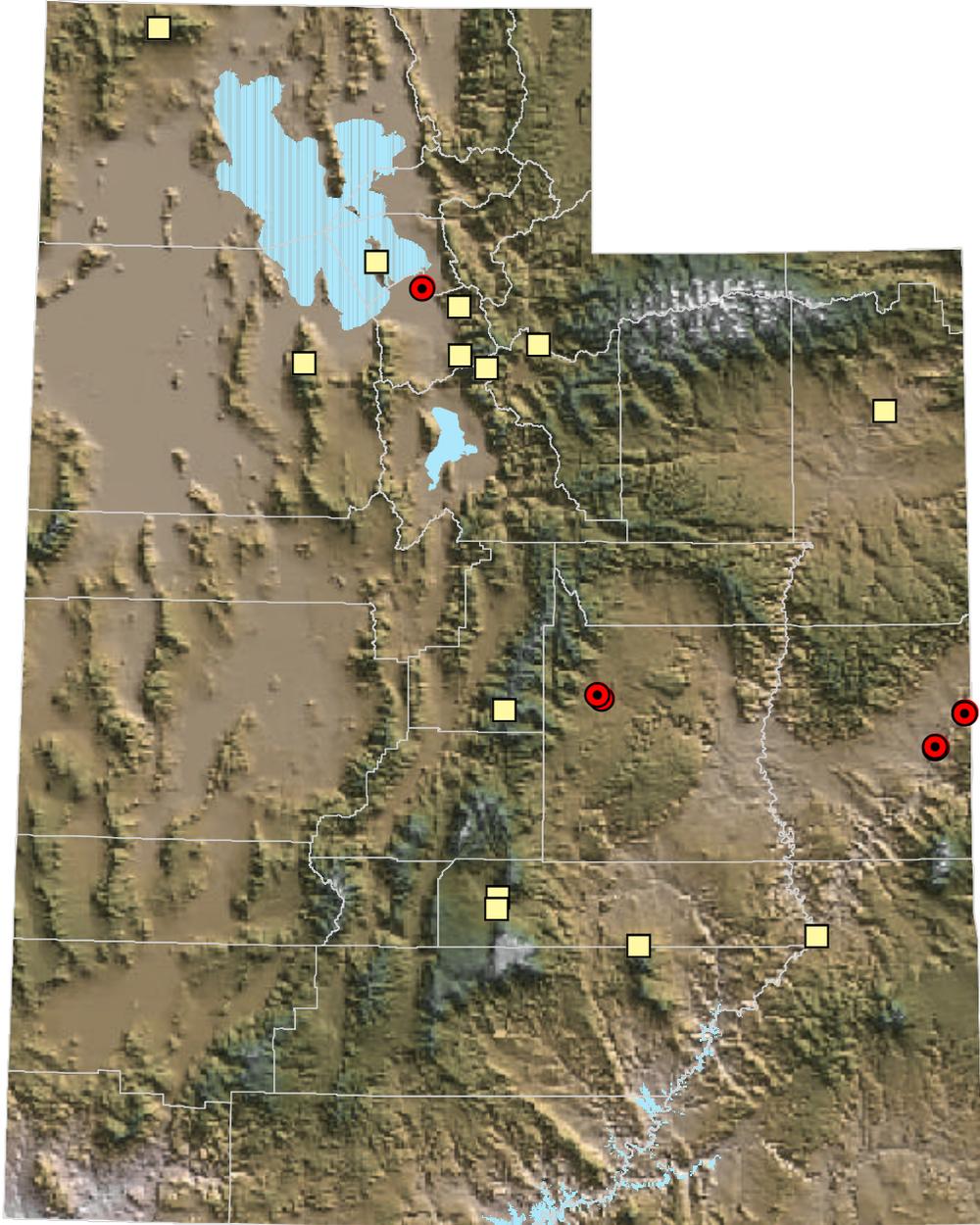


Figure 63. The distribution of nest records of the bald eagle (*Haliaeetus leucocephalus*). Red circles represent recently active nests, and yellow squares represent historical nesting sites.

Common Black-hawk
Buteogallus anthracinus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Hawks and Eagles (Accipitridae)

SUBSPECIES: The subspecies *Buteogallus anthracinus anthracinus* occurs in Utah.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southern Washington County (Fig. 63) where only 3 pairs nest annually. This species was first documented as a breeding species in the state during 1962 (Carter and Wauer 1965) and has nested regularly since then. Nests are in riparian stands of cottonwoods (Hayward et al. 1976) associated with water courses passing through low-elevation desert-scrub habitats. Loss or alteration of riparian gallery forests could affect the persistence of this species in Utah.

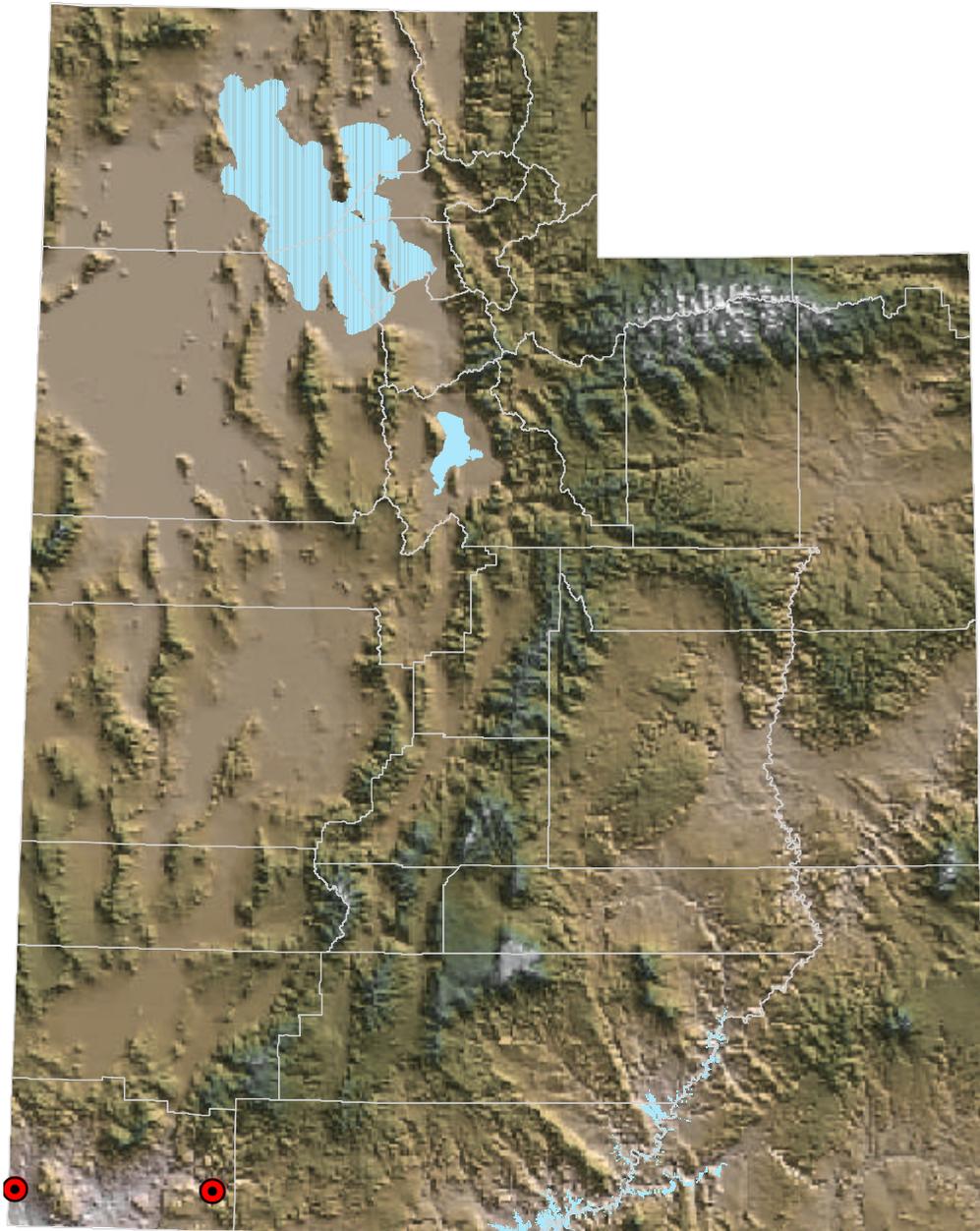


Figure 64. The distribution of nests of the common black-hawk (*Buteogallus anthracinus*).

Swainson's Hawk
Buteo swainsoni

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Hawks and Eagles (Accipitridae)

SUBSPECIES: This species is monotypic.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Breeding populations are scattered throughout the state (Fig. 65). Concentrations of breeding sites occur at the northern and eastern margins of the Bonneville Basin of western Utah. Nesting sites tend to be absent from high-elevation montane habitats and low-elevation desert flats. Occupied habitat includes sagebrush steppe, juniper stands, grasslands, and agricultural lands (Behle et al. 1985, Hayward et al. 1976), and nests are also frequently in lowland riparian habitat (F. Howe, UDWR, pers. comm.).

This species is generally uncommon, but may be locally common in appropriate habitat. Behle et al. (1985) considered this species to be an "[u]ncommon summer resident." Some evidence suggests population declines, at least locally (Hayward et al. 1976, Wauer and Carter 1965). Hayward et al. (1976) mentioned that it has suffered recently from "heavy persecution." Because this species feeds heavily on grasshoppers, agricultural pesticide use probably is a threat in Utah as it is elsewhere.

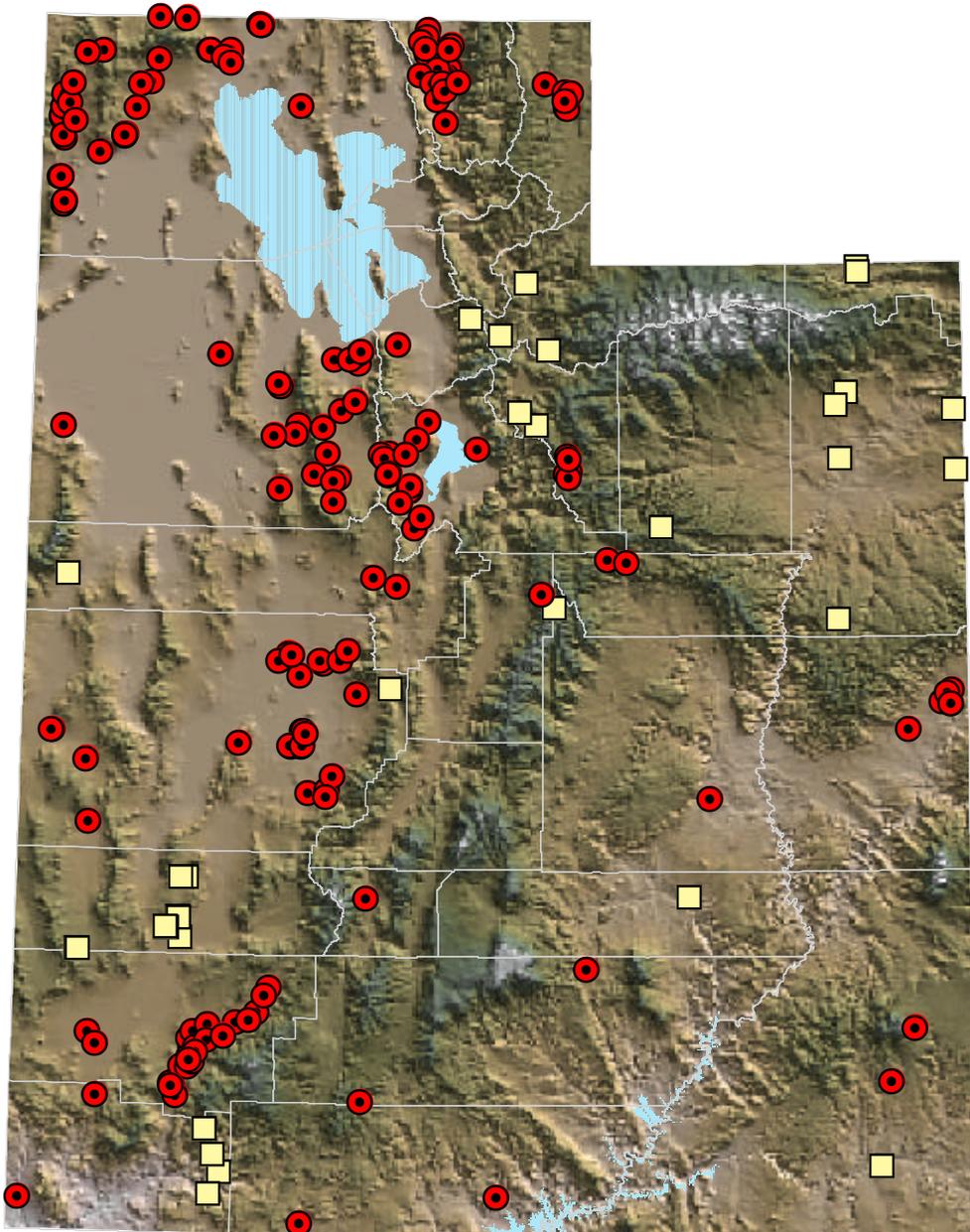


Figure 65. The distribution of records of Swainson's hawk (*Buteo swainsoni*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983. Some nests found since 1983 are not currently in use or are used only sporadically.

Ferruginous Hawk
Buteo regalis

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Hawks and Eagles (Accipitridae)

SUBSPECIES: This species is monotypic.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs throughout most of the state in proper habitat (Fig. 66), being most prevalent in the southern Bonneville Basin in southwest Utah and parts of the Colorado Plateau in eastern Utah. The species is absent from high-elevation regions and sparsely vegetated desert flats. Breeding sites are notably sparse in southeastern Utah (e.g., Walters and Sorensen 1983, Bechard and Schmutz 1995), but distributional patterns in this region may reflect low sampling effort. However, the number of breeding pairs may be low even within regions having relatively dense concentrations of nest sites because breeding pairs often alternate among several nest sites and many are occupied irregularly. Breeding habitat includes pinyon-juniper and juniper-shrub assemblages and sagebrush steppe (Walters and Sorensen 1983).

Olendorff (1993) indicated that populations had declined during the years between 1979 and 1992. Mining, gas and oil development, conversion of shrubland habitats to agriculture, and prey base reduction associated with degradation of shrubland habitat affect nest productivity and are among the threats to population viability. Disturbance to nest sites by off road vehicle use and other recreational activities is an important threat.

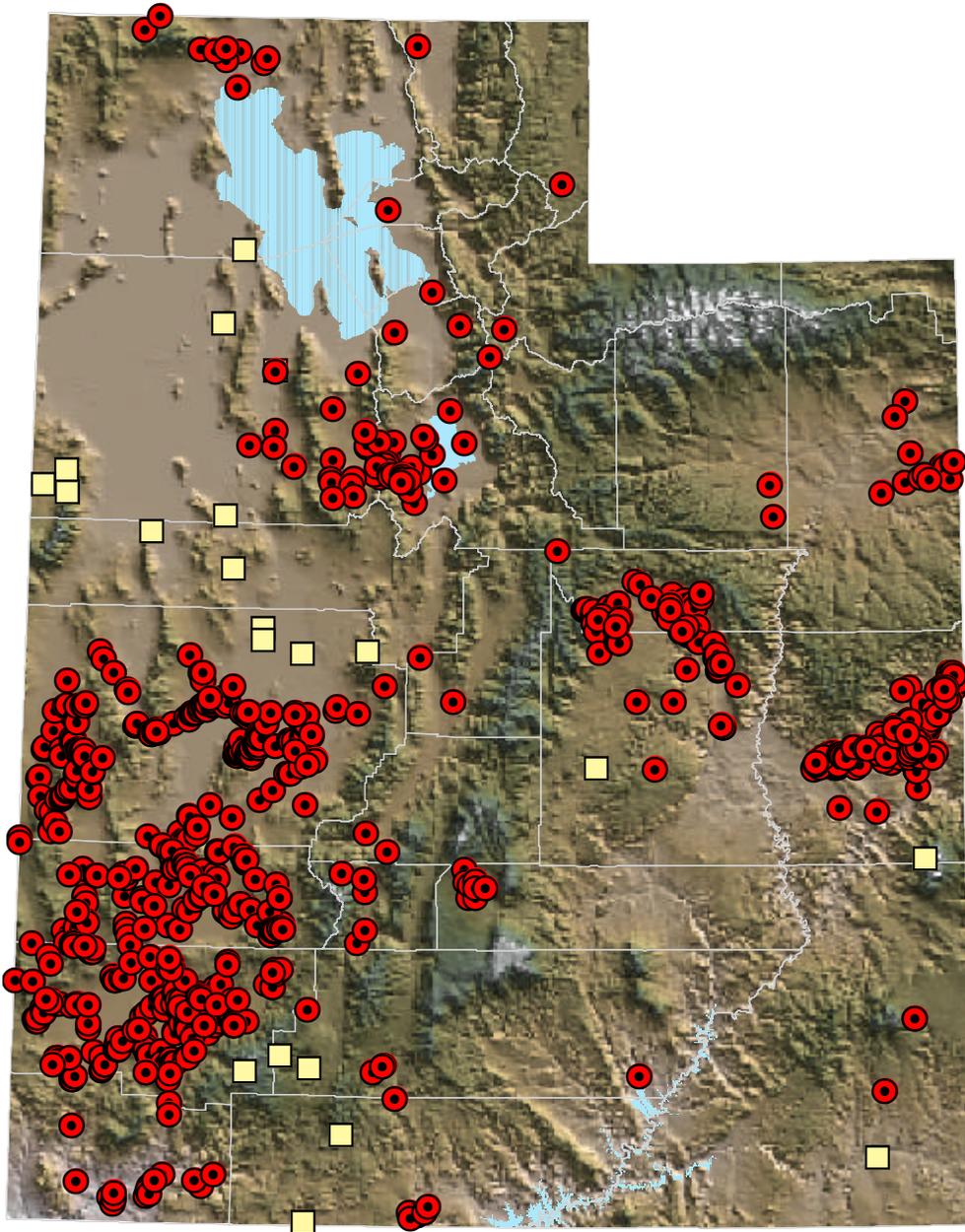


Figure 66. The distribution of records of the ferruginous hawk (*Buteo regalis*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983. Many nests found since 1983 are not currently in use or are used only sporadically.

Peregrine Falcon
Falco peregrinus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Falcons (Falconidae)

SUBSPECIES: The subspecies that breeds in Utah is *Falco peregrinus anatum*. Migrants are also the subspecies *anatum*, but at least a few migrants in Utah are known to be of the subspecies *F. peregrinus tundrius* (Behle 1985).

OTHER NAMES: An older common name for this species is the duck hawk.

CONSERVATION STATUS DESIGNATIONS

No conservation status designations are currently applied by USFWS or UDWR.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species currently breeds on the Colorado Plateau and to a lesser extent along the Wasatch Front (Fig. 67). It formerly bred throughout much of the state (Porter and White 1973). Breeding sites are frequently on ledges on vertical rock faces, but city buildings and artificial nest sites are also used by at least introduced individuals (Behle et al. 1985). Foraging habitat is primarily wetlands but also includes sagebrush steppe, desert scrub, and grassland, but the species is generally absent from high-elevation montane areas. Hayward et al. (1976) noted the occurrence of this species "especially in areas near marshlands."

There are about 180 breeding pairs in Utah (C. White, pers. comm. 1997). This species formerly was much more abundant. Porter and White (1973) estimated: "The present total population of the peregrine in Utah is possibly only 10 percent of what it has been in historic times." However, it is likely that the Utah population has increased somewhat in recent years, particularly in the southern part of the state. Recovery in the northern part of the state has been slower. The main threat to this species in Utah currently is alteration of habitat. Numerous individuals raised in captivity have been released in Utah, particularly in the north-central part of the state.

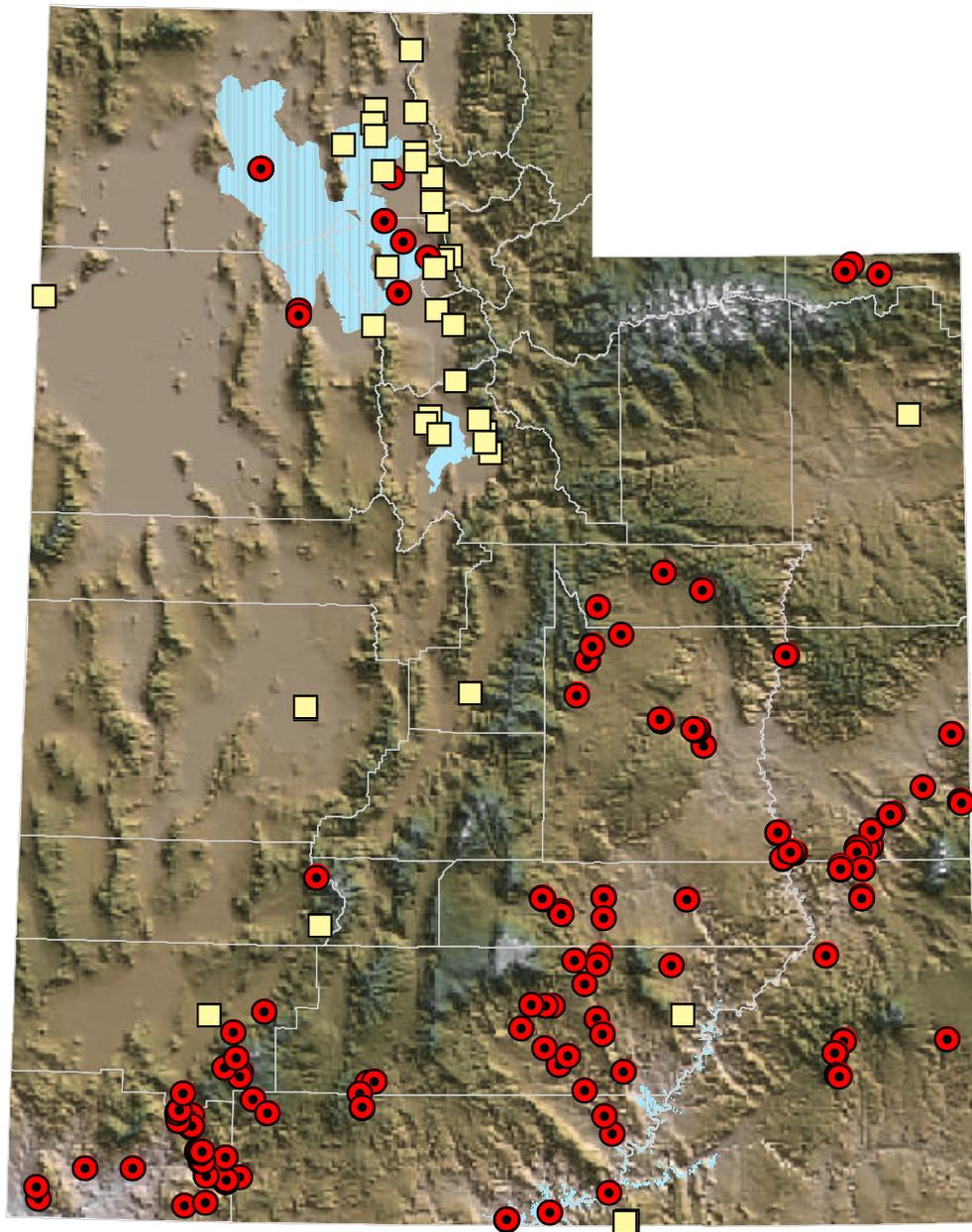


Figure 67. The distribution of records of the peregrine falcon (*Falco peregrinus*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Greater Sage-grouse
Centrocercus urophasianus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Grouse, Quail, and Pheasants (Phasianidae)

SUBSPECIES: The subspecies that occurs in Utah is *Centrocercus urophasianus urophasianus*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002). A management plan (UDWR 2002a) has been developed to facilitate recovery efforts.

DISTRIBUTION AND ABUNDANCE IN UTAH

Scattered populations occur throughout much of the state excluding the southeastern quarter of the state, being absent from most of the Colorado Plateau of southeast Utah (Fig. 68) (UDWR 2002a). Within this range, the extent of occupied habitat has declined by an about 60% from the historical extent (Beck et al. 2003). Populations occur primarily in habitat dominated by sagebrush (*Artemisia* spp.), especially big sagebrush (*A. tridentata*). Other habitats, such as wet meadows, may be of high importance seasonally.

The size of the Utah breeding population has been estimated to comprise 13,000 adults (UDWR 2002a). Population data collected since the late 1960s indicate statewide population declines (UDWR 2002a, Beck et al. 2003). Several factors may contribute to population declines (UDWR 2002a). For example, anthropogenic disturbance at lek sites may affect reproductive success rates. However, the primary factor affecting population levels is thought to be habitat loss. Although urban expansion and the conversion of native habitat to agricultural purposes may account for some habitat loss, especially historically, declines of populations have been largely attributed to decreasing suitability of sagebrush steppe habitat, which has resulted in the loss and fragmentation of sage-grouse habitat. Invasive non-native plants, particularly cheatgrass (*Bromus tectorum*), have resulted in dramatic changes to habitat structure and species composition in many areas. This grass is also involved in altered fire cycles and the associated conversion of large areas from shrub steppe habitat to nonnative grassland. Changes to sagebrush steppe habitat are also a result of overgrazing by livestock.

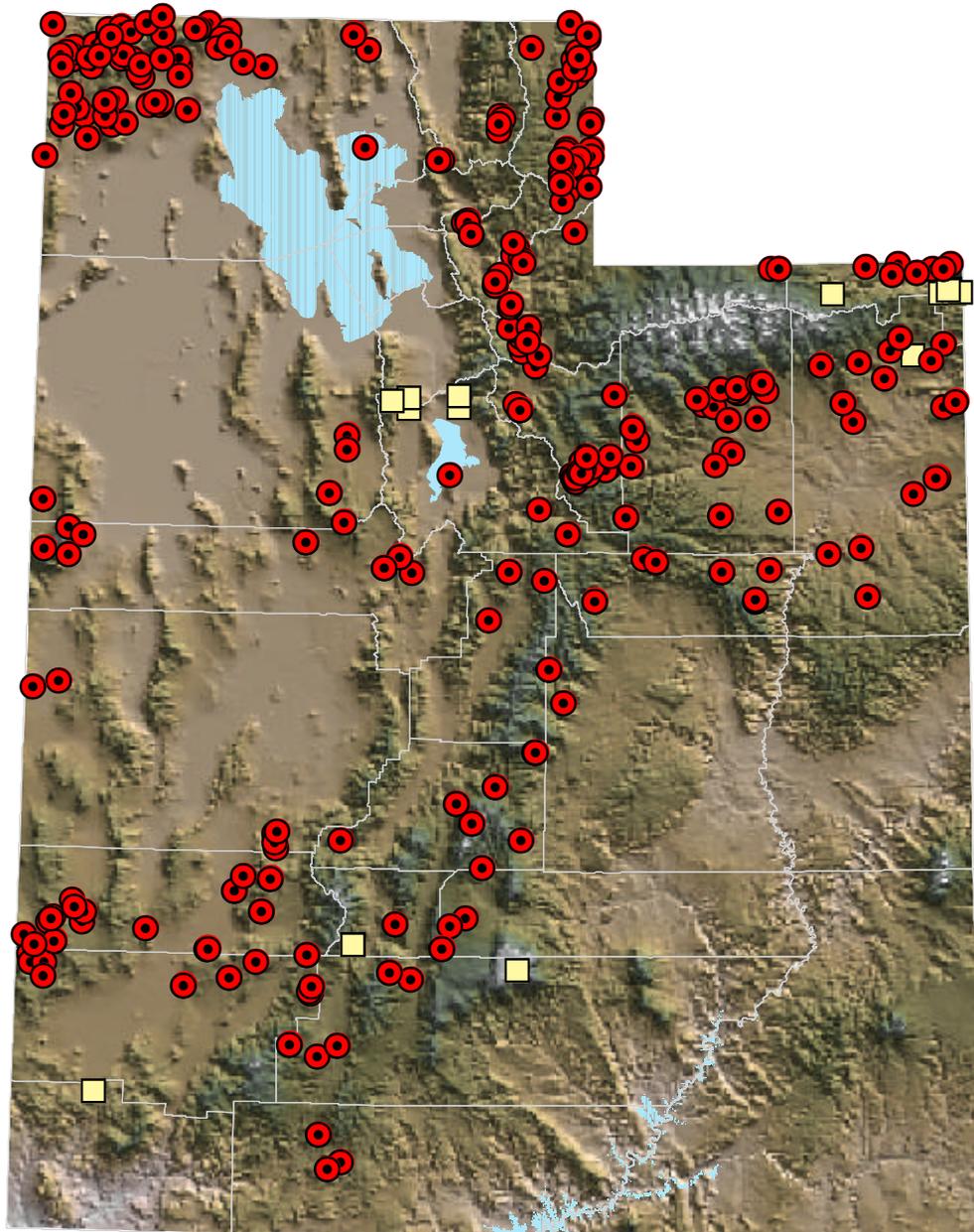


Figure 68. The distribution of records of the greater sage-grouse (*Centrocercus urophasianus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Gunnison Sage-grouse
Centrocercus minimus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Grouse, Quail, and Pheasants (Phasianidae)

SUBSPECIES: No subspecies have been proposed.

OTHER NAMES: This species was considered to be conspecific with the greater sage-grouse (*Centrocercus urophasianus*) until recently (Young et al. 1994, 2000).

CONSERVATION STATUS DESIGNATIONS

This species was designated a candidate for listing under the federal Endangered Species Act by USFWS during 2000 (65 Federal Register 82310-82312). It is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations of this sage-grouse occur exclusively to the south and east of the Colorado River in San Juan County (Fig. 69). Small numbers of birds from populations centered in Colorado occur in southeastern Grand County. This sage-grouse occurs in sagebrush-dominated habitat. Specific habitat requirements are poorly understood, but wet meadow and riparian habitats may be of seasonal importance, particularly as brood habitat (San Juan County Gunnison Sage-grouse Local Working Group [SWOG] 2000).

The Utah population of this species has declined from historical levels and has been recently estimated to be about 150 individuals (SWOG 2000, Beck et al. 2003). During the early 1970s the population was estimated to comprise about 600 to 1,000 individuals. Declines have been attributed to the loss and degradation of habitat (SWOG 2000); perhaps as much as 70% of potentially occupied habitat has been lost from historical levels (Beck et al. 2003). The conversion of native sagebrush habitat to agricultural land continues to affect the Utah population, being responsible for the loss of several lek sites during recent years. Increasingly efficient use of water for agricultural purposes may ultimately be detrimental to habitat conditions by reducing the availability of wet meadow habitat.

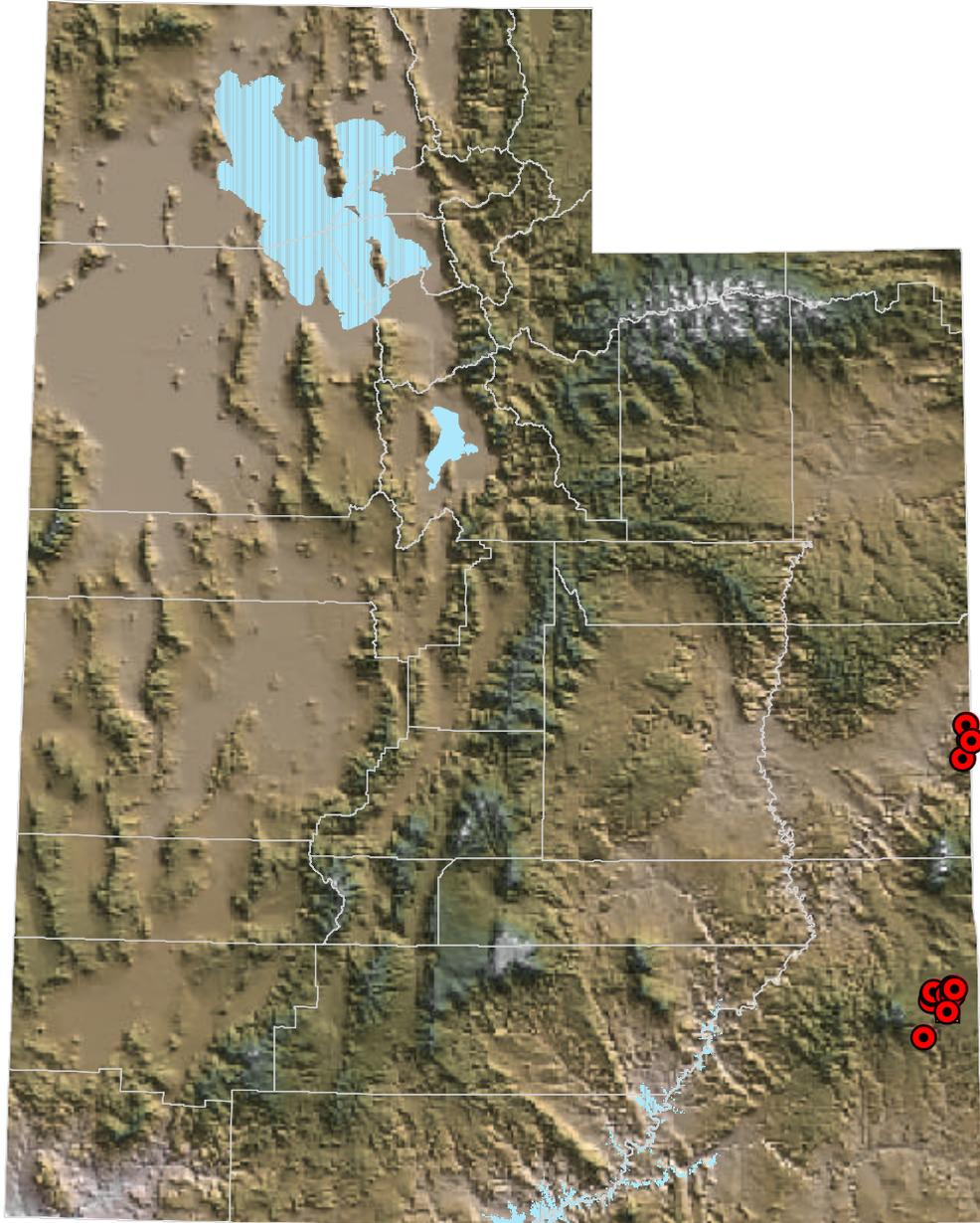


Figure 69. The distribution of records of the Gunnison sage-grouse (*Centrocercus minimus*) including leks sites that may have recently been lost.

Sharp-tailed Grouse
Tympanuchus phasianellus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Grouse and Pheasants (Phasianidae)

SUBSPECIES: The subspecies that occurs in Utah is the Columbian sharp-tailed grouse, *Tympanuchus phasianellus columbianus* (Connelly et al. 1998).

OTHER NAMES: Woodbury et al. (1949) referred to this species in Utah using the name *Pediochetes phasianellus*, and Behle and Perry (1975) called it *Pediochetes phasianellus*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is known to occur in northern Utah in Box Elder, Cache, Morgan, and Weber counties (Fig. 70) where populations occur in grassland, sagebrush steppe, and mountain riparian habitats (Parrish et al. 2002, UDWR 2002b). Historically the Utah distribution was much greater, comprising most of central and northern Utah and scattered portions of eastern Utah. The currently occupied extent of populations is estimated to be only 4% of the historical range in Utah (UDWR 2002b).

Accounts by pioneers suggest that the species was historically very common, with individual flocks comprising several hundred birds. Severe declines during the early decades of the 1900s were caused by unregulated hunting and the loss of habitat to agricultural and urban development. The total Utah population was estimated to be 1,500 individuals during the 1930s. During recent decades, population recovery in areas of northern Utah has been evident and the total Utah fall population has been estimated to exceed 10,000 individuals. Recent recovery has been attributed to improvements in habitat conditions, in part resulting from the federal Conservation Reserve Program (UDWR 2002b).

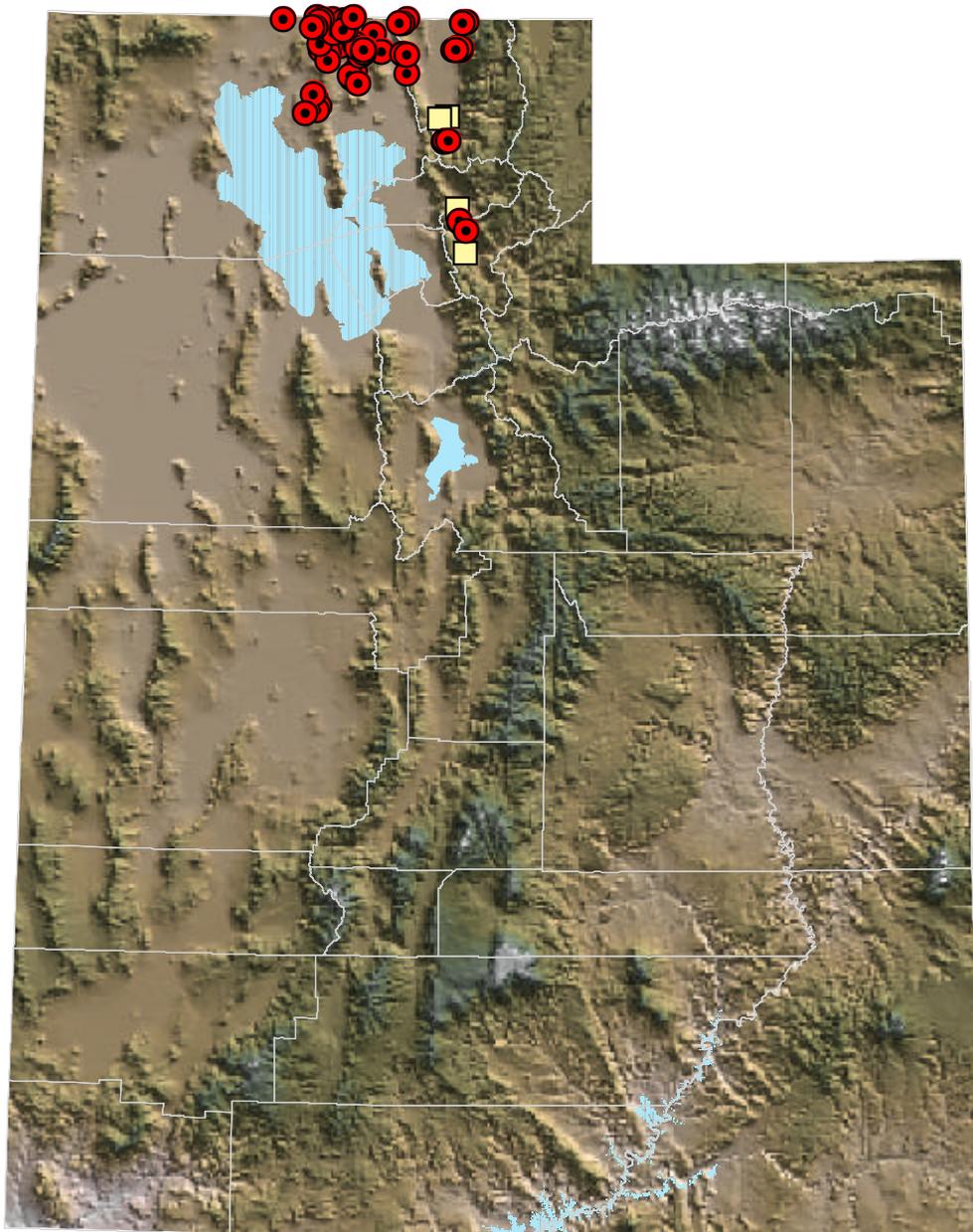


Figure 70. The distribution of records of the sharp-tailed grouse (*Tympanuchus phasianellus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Mountain Plover
Charadrius montanus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Plovers (Charadriidae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: Woodbury et al. (1949) referred to this species as *Eupoda montana*.

CONSERVATION STATUS DESIGNATIONS

Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

There is a single breeding population known to occur in Utah which was discovered during 1978 (Day 1994). This species is known to nest in Utah only in a few places in the Uinta Basin (Fig. 71). Day (1994) described the general area in which the first nests of this species were found in Utah as "... a highly varied topography of sand/gravel washes, dry upland benches dominated by low-growing shrubs of *Artemisia* [sic] sp. and *Chrysothamnus* sp., rocky cliffs, and outcroppings. Greasewood (*Sarcobatus vermiculatus*) predominates in ravines and low-lying areas. Indian rice grass (*Oryzopsis hymenoides*), galleta (*Hilaria jamesii*) and blue grama (*Bouteloua gracilis*) are common understory grasses.... Elevations vary from approximately 1,524 m to 1,920 m." Nesting sites are in immediate proximity to oil wells and dirt roads associated with them (Day 1994).

The breeding population in Utah is very small and may have been extirpated. Surveys during 2002 failed to detect any plovers following a steady decline since the early 1990s in the number of adults nesting (Parrish et al. 2002). The reasons for this decline are not fully understood, but nesting habitat may be vulnerable to disturbance associated with oil and gas development.

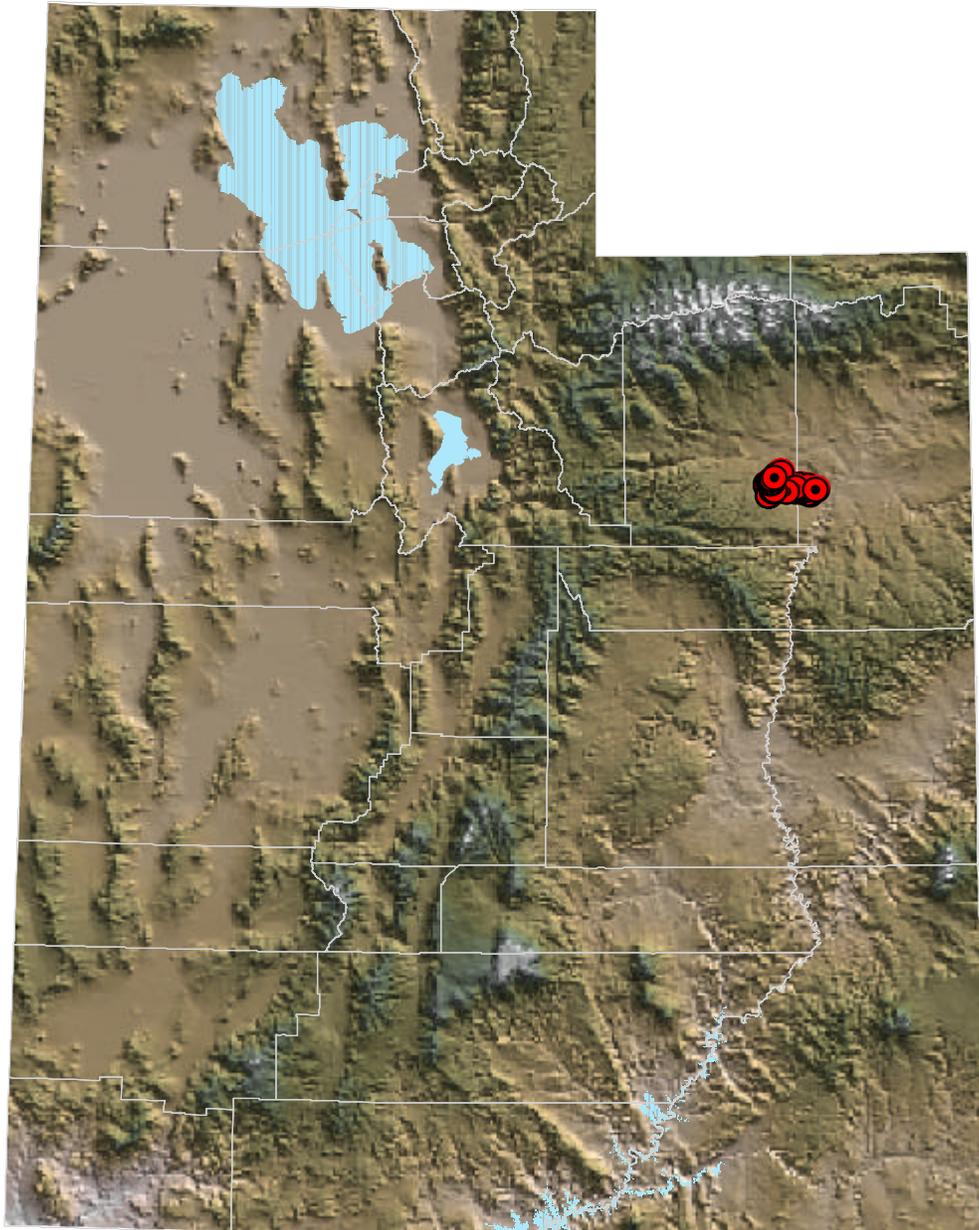


Figure 71. The distribution of records of the mountain plover (*Charadrius montanus*) that represent probable or confirmed breeding activity.

Long-billed Curlew
Numenius americanus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Shorebirds (Scolopacidae)

SUBSPECIES: Subspecies are not currently recognized.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species breeds in scattered localities throughout the state, primarily in northern Utah, but also in the west and southwest (Fig. 72) (Behle et al. 1985). Cook (1984) presented evidence of nesting in Uintah County, but confirmation of breeding in northeastern Utah is lacking. This species occurs as a migrant throughout most of Utah. Arid grasslands, grassy shorelines, and agricultural areas are favored nesting habitats of this species (Walters and Sorensen 1983).

Populations are thought to have declined from historical levels, but few data are available to estimate the size of the historical or current population. Hayward et al. (1976) wrote that in Utah this species is "[a] fairly common summer resident and migrant" Behle et al. (1985) considered it to be a "[c]ommon summer resident in localized areas" Several authors have mentioned the decline of populations (Hayward et al. 1976, Behle et al. 1985). Loss of nesting habitat and disturbance to nest sites are suspected factors causing population declines (Hayward et al. 1976, Parrish et al. 2002). Increased predation rates associated with growing red fox populations are also of probable importance.

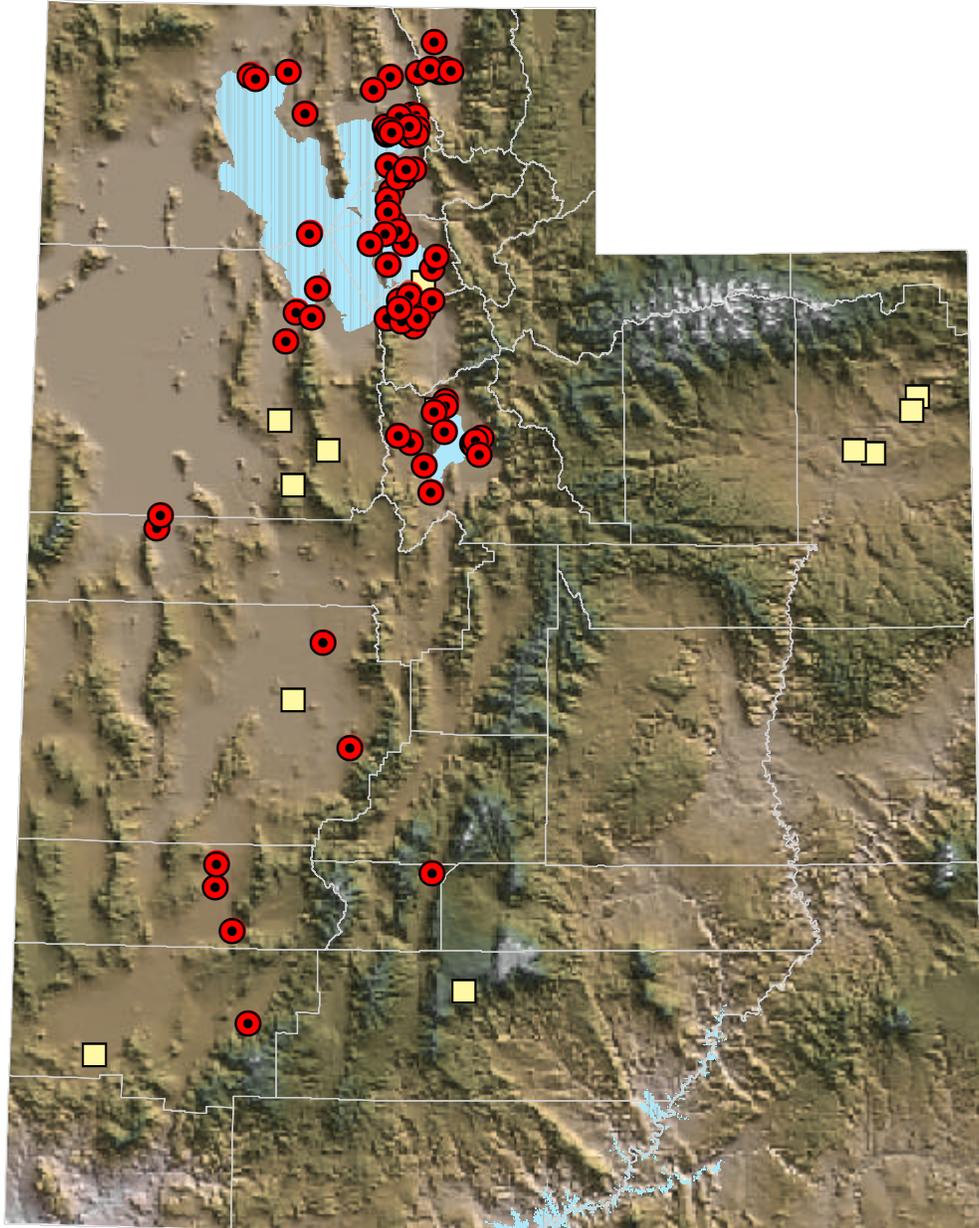


Figure 72. The distribution of records of the long-billed curlew (*Numenius americanus*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Caspian Tern
Sterna caspia

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Gulls and Terns (Laridae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: Woodbury et al. (1949) used the name *Hydroprogne caspia* for this species in Utah.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Historical nesting sites have been documented on few islands in Utah Lake and Great Salt Lake and dikes and an artificial island at Bear River Migratory Bird Refuge, Box Elder County (Fig. 73) (Hayward 1935, Hayward et al. 1976, Behle et al. 1985). During recent years, few breeding attempts have been recorded along the south shore of the Great Salt Lake. The decline and possible loss of the breeding population may have been caused by disturbance to nesting sites. Fluctuations in water levels may have also been important.

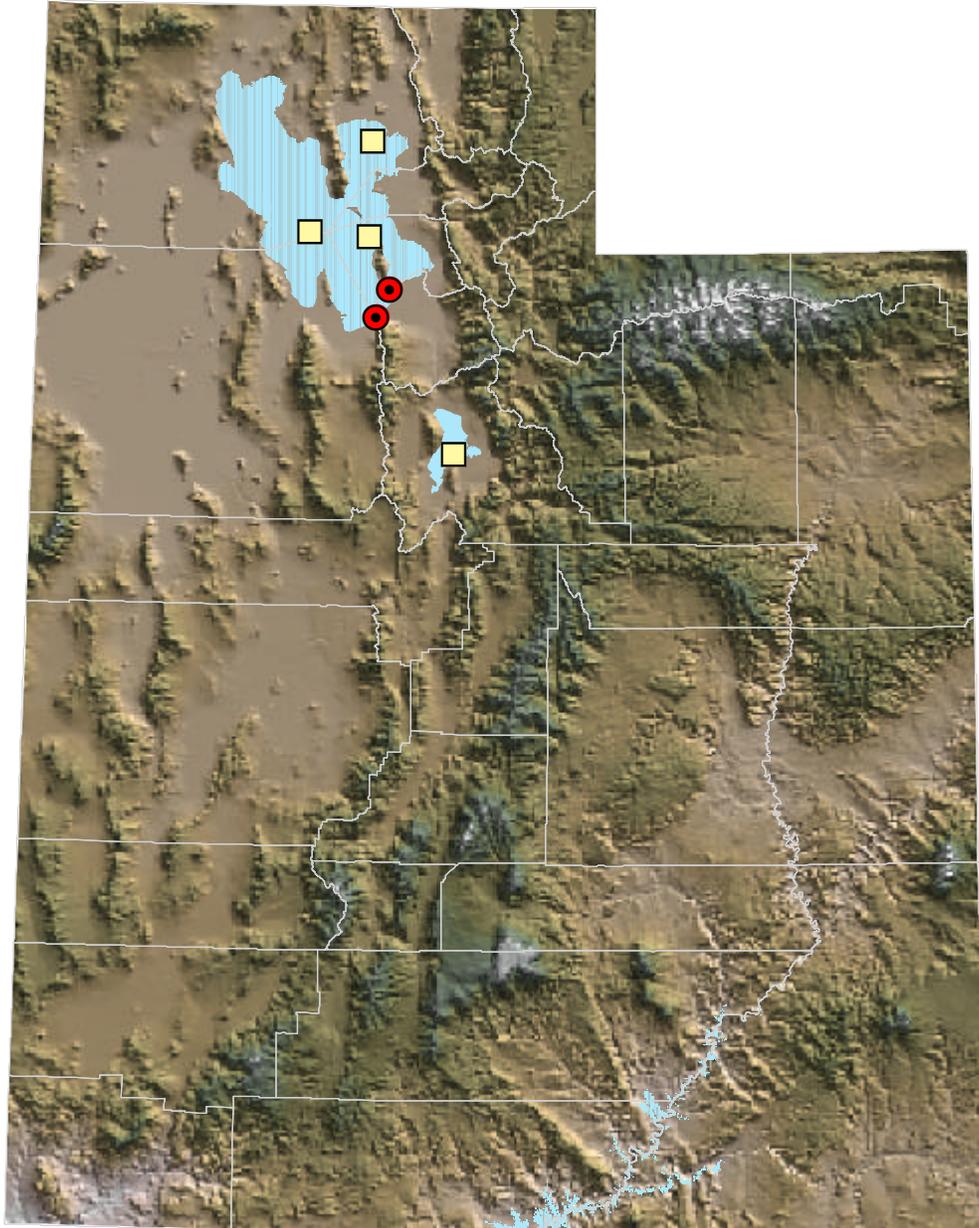


Figure 73. The distribution of records of the Caspian tern (*Sterna caspia*) that represent probable or confirmed breeding activity. Red circles represent breeding attempts since 1983, inclusive, and yellow squares represent records before 1983.

Black Tern
Chlidonias niger

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Gulls and Terns (Laridae)

SUBSPECIES: The subspecies occurring in Utah is *Chlidonias niger surinamensis*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species has nested in small colonies in the marshes around Utah Lake, Great Salt Lake, and Pelican Lake, and on sandbars in the Green River (Fig. 74) (Woodbury et al. 1949, Hayward et al. 1976). Bee and Hutchings (1942) noted that "the usual nesting sites are on mats of dead rushes in marshes or on grass tufts of inundated marginal lands."

Few data are available regarding abundance. Hayward et al. (1976) considered this species to be common. Behle et al. (1985), however, considered the species to be uncommon. Recent records are poorly documented, making the current status difficult to determine, but the species appears to be rare and locally distributed, at best. Potential threats to populations include habitat loss to agriculture, residential, and commercial development, water level management in wetlands, and exposure to pesticides.

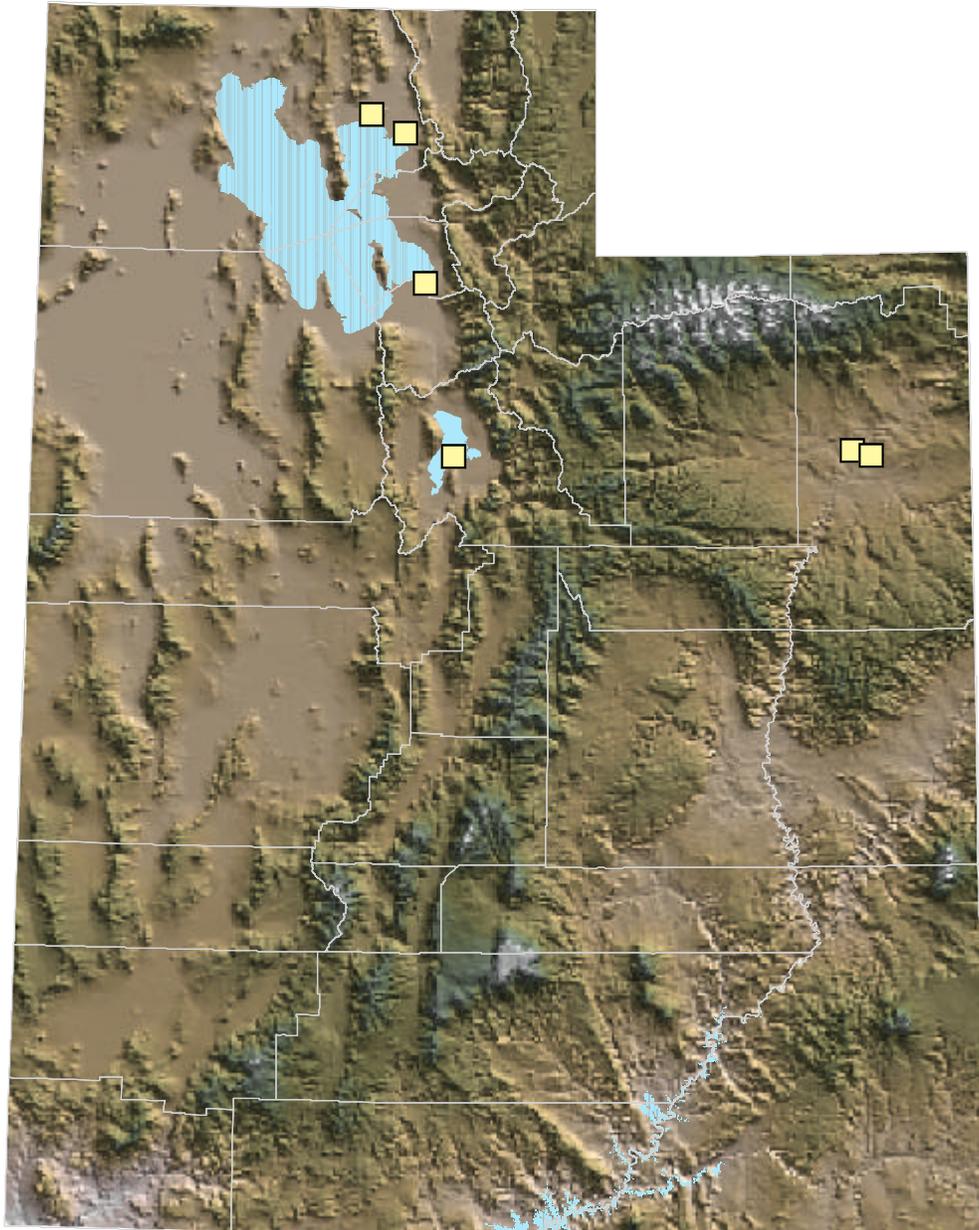


Figure 74. The distribution of records of the black tern (*Chlidonias niger*) that represent probable or confirmed breeding activity.

Yellow-billed Cuckoo
Coccyzus americanus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Cuckoos (Cuculidae)

SUBSPECIES: The nominal subspecies that occurs in Utah is *Coccyzus americanus occidentalis*. However, the validity of subspecies has been questioned (Hughes 1999 for discussion).

CONSERVATION STATUS DESIGNATIONS

During 2001, USFWS designated the subspecies *C. americanus occidentalis* (i.e., populations in the western U. S.) a candidate for listing under the federal Endangered Species Act (66 Federal Register 38611-38626). Utah Partners in Flight identifies this bird as a Priority Species (Parrish et al. 2002). It is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in scattered localities throughout much of the state (Fig. 75), but breeding at most localities has not been confirmed. Hayward et al. (1976) listed nesting records in Weber, Salt Lake, Utah, and Washington counties. Recent breeding has been confirmed in Salt Lake, Grand, and Uintah counties (Parrish et al. 2000). Within this range, large tracts of low- and mid-elevation riparian habitat having dense shrubs and overstory gallery forests, especially cottonwood-willow associations, are used as breeding habitat (Parrish et al. 2000).

Because this species is rather secretive and difficult to detect and populations are sparsely distributed, definitive estimates of the number of pairs breeding in the state have not been produced. Most occupied habitat patches probably support only 1 or 2 pairs, so the number of breeding adults may be fewer than 20. Although the species was apparently relatively rare historically, as well, the population is thought to have declined from historical levels in association with the loss and degradation of riparian habitat. The invasion of salt cedar (*Tamarix* sp.) has resulted in the dramatic alteration of many riparian corridors. Riparian areas throughout the state have also been heavily impacted by livestock use, water withdrawal from streams, development, and other disturbances which have resulted in changes to habitat structure and species composition (Parrish et al. 2002).

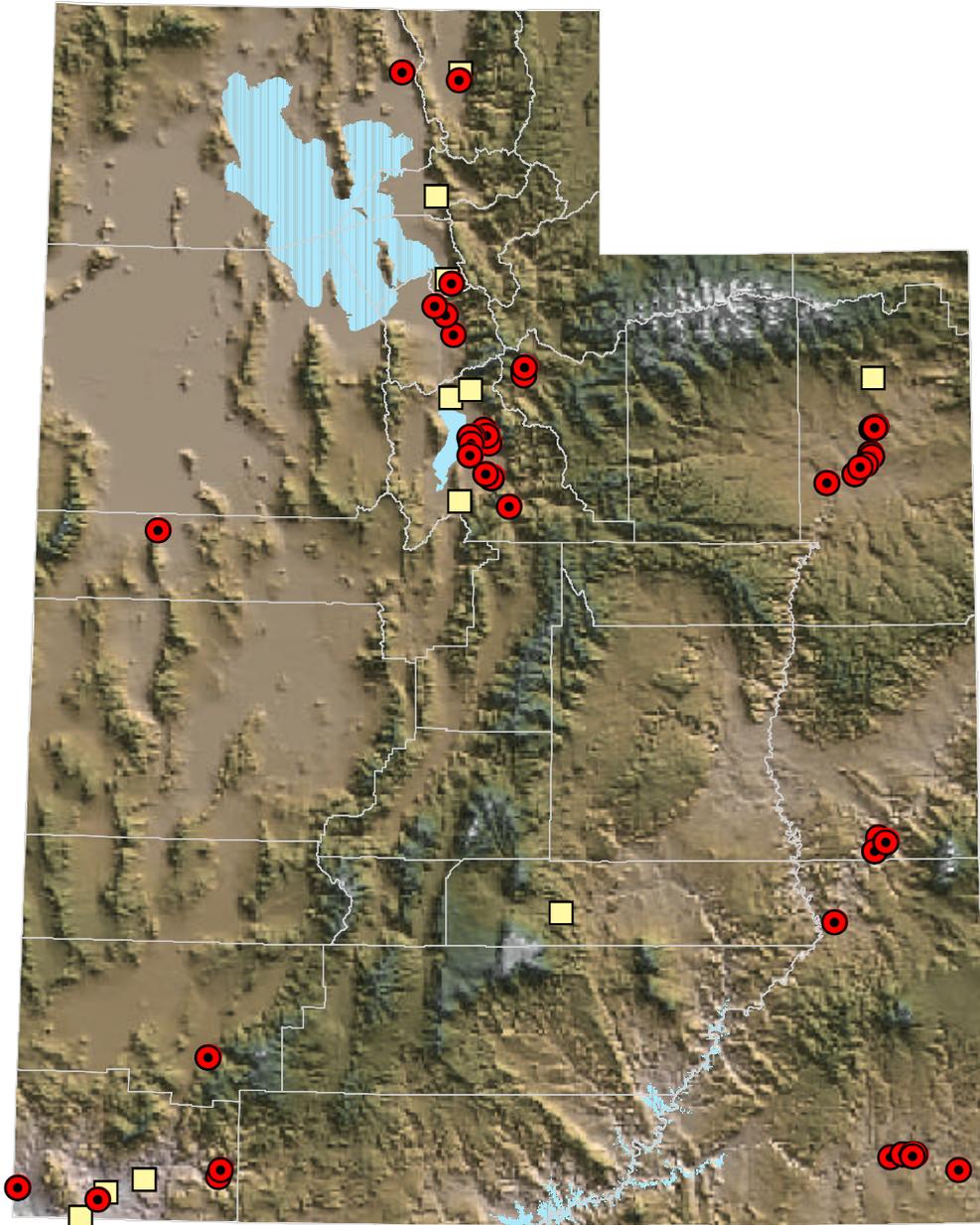


Figure 75. The distribution of records of yellow-billed cuckoos (*Coccyzus americanus*) seen or heard during the breeding season. Some records may represent migrants or nonbreeding birds. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Burrowing Owl
Athene cunicularia

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Owls (Strigidae)

SUBSPECIES: The subspecies that occurs in Utah is *Athene cunicularia hypugea*.

OTHER NAMES: This species was formerly considered to be a member of the genus *Speotyto*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs statewide in scattered localities (Fig. 76). Nesting sites occur in a variety of shrub-dominated habitats, including sagebrush steppe and desert scrub, often in sparsely vegetated areas. An important component of the habitat is the presence of abandoned animal burrows in which the burrowing owl nests. In eastern and southern Utah, prairie-dogs (*Cynomys* spp.) create burrows that are often used by owl populations (Hayward et al. 1976). In western Utah where prairie-dogs are absent, vacant badger (*Taxidea taxus*) or ground squirrel (*Spermophilus* spp.) burrows may be used.

Populations may be locally common but are irregularly distributed (Hayward et al. 1976, Behle et al. 1985). Population declines and loss have been reported in some areas, particularly along the Wasatch Front where habitat loss to urbanization and agriculture has been severe (Hayward et al. 1976). Declining prairie-dog populations may affect owl populations (Evans 1982). Haug et al. (1993) also identified the use of pesticides (insecticides and rodenticides) and vehicle collisions (road mortality) as significant threats to populations.

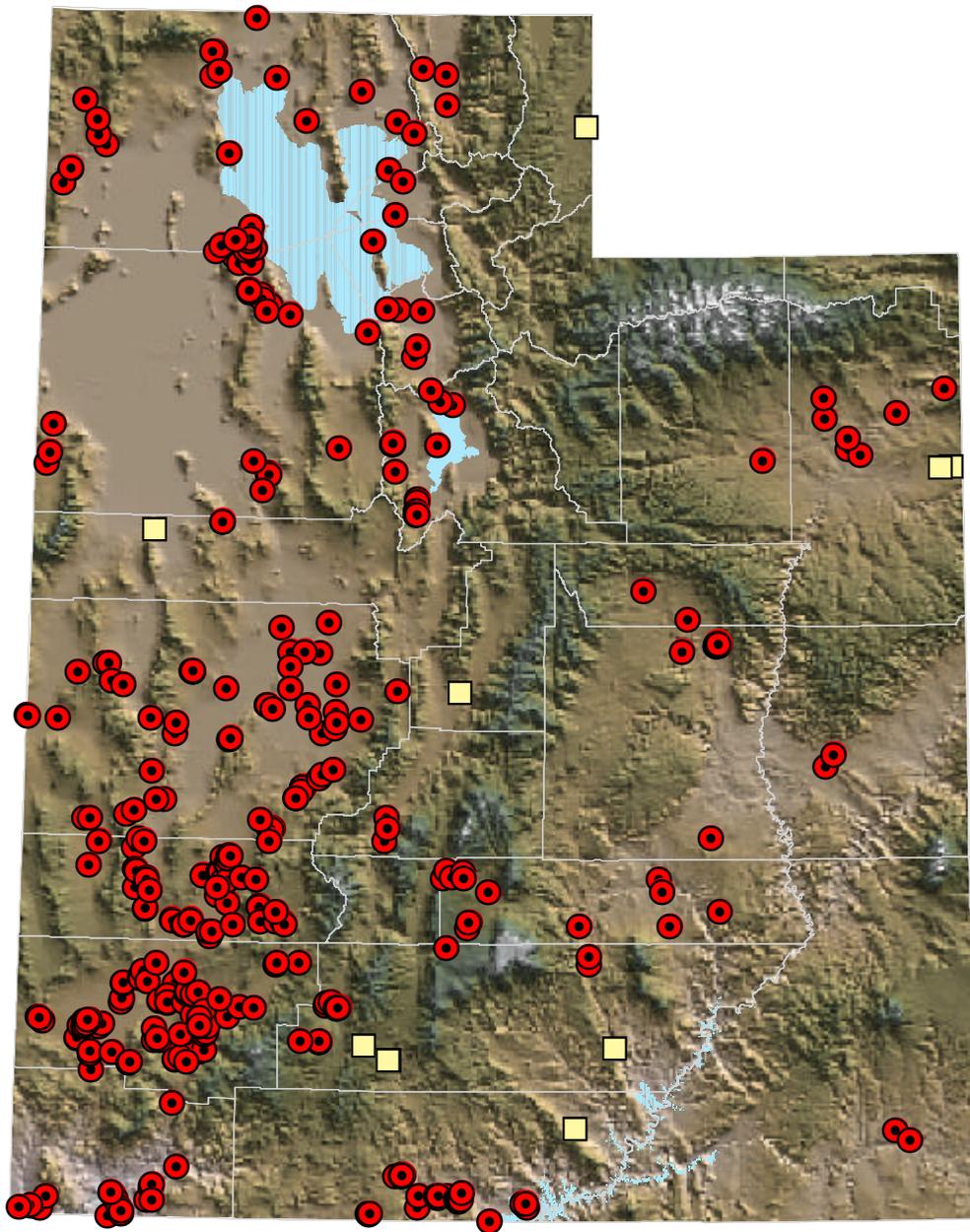


Figure 76. The distribution of records of the burrowing owl (*Athene cunicularia*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Spotted Owl
Strix occidentalis

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Owls (Strigidae)

SUBSPECIES: The subspecies that occurs in Utah is the Mexican spotted owl, *Strix occidentalis lucida*.

CONSERVATION STATUS DESIGNATIONS

The Mexican spotted owl (*S. occidentalis lucida*) was designated Threatened under the federal Endangered Species Act during 1993 (58 Federal Register 14248-14271). A recovery plan (Block et al. 1995) has been developed as a guide to conservation efforts. It is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southern and eastern parts of the state (Fig. 77). Breeding sites are in deep, narrow canyons supporting riparian woodlands, stands of pinyon and juniper, or ponderosa pine forests (Rinkevich et al. 1995).

The size of the Utah population is incompletely known. Surveys conducted during the early 1990s resulted in the detection of about 75 individuals, 50 of which were thought to be reproductively active adults (Willey 1995). Historical data are not sufficient to evaluate population trends (Rinkevich et al. 1995). Threats to population viability are also incompletely understood. Moir et al. (1995) considered fire, logging, grazing, and recreational activities to be threats, considering the threat of fire to be moderate and the threat of timber harvest to be low for populations on the Colorado Plateau.

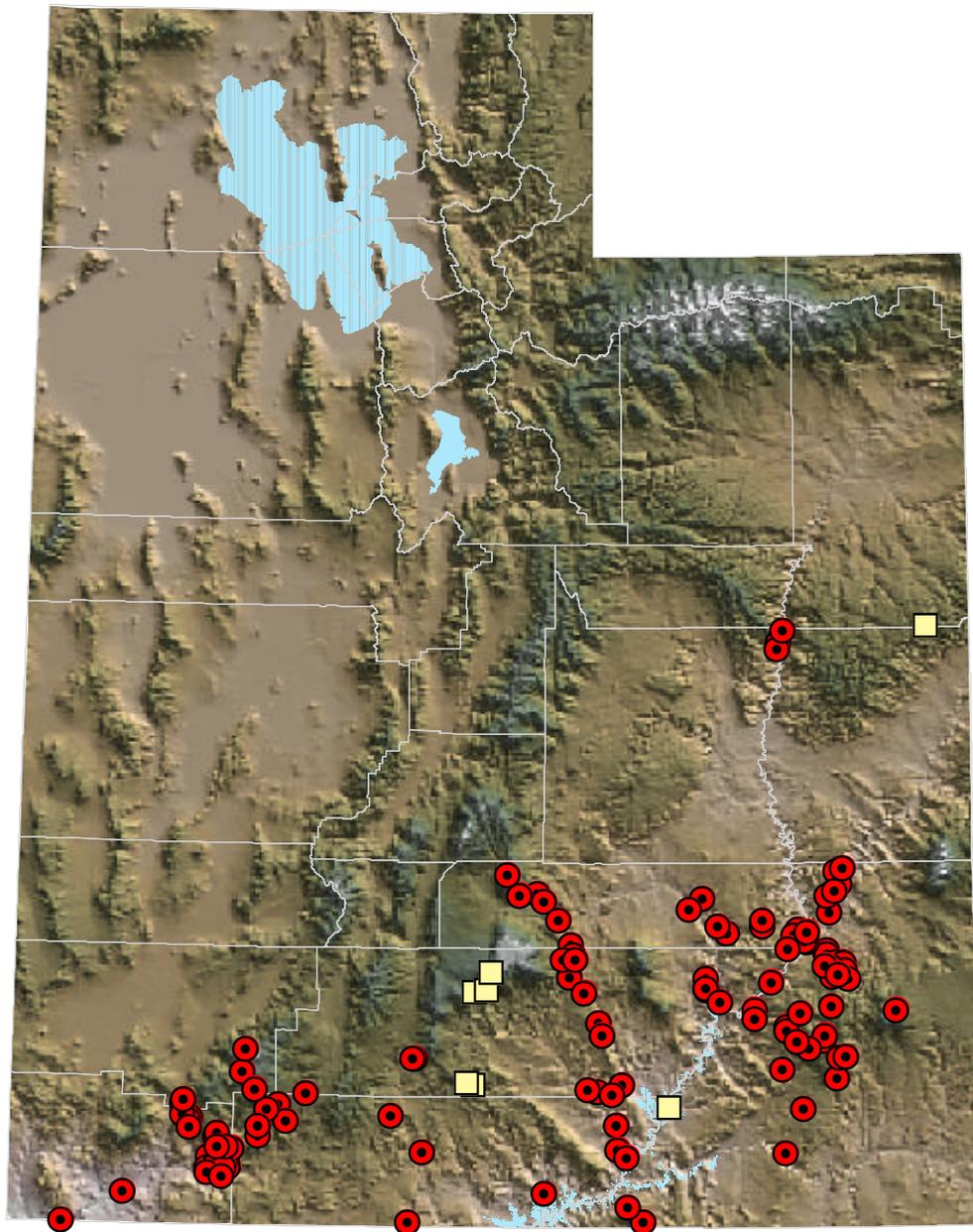


Figure 77. The distribution of records of the spotted owl (*Strix occidentalis*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Short-eared Owl
Asio flammeus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Owls (Strigidae)

SUBSPECIES: The subspecies that occurs in Utah is *Asio flammeus flammeus*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species breeds across the northern two-thirds of the state (Fig. 78) (Walters and Sorensen 1983) and occurs throughout the state during non-breeding periods. Locally, breeding status is often difficult to evaluate because this species may breed opportunistically and sporadically in response to rodent density. It is said to be less common in eastern Utah (Hayward et al. 1976) and dramatic population decline has been noticed along the Wasatch Front (Behle et al. 1985). Such declines are the result of urban and agricultural encroachment on its habitat, threats that are likely driving declines range-wide.

Walters and Sorensen (1983) listed the habitats in Utah where this species is known to nest as marshes and wet hummocks, agricultural croplands (non-woody), arid grasslands; they listed other habitats utilized during the breeding season as cold desert shrub (including saltbrush and greasewood) and sagebrush-rabbitbrush. They considered all of these habitats to be utilized during winter.

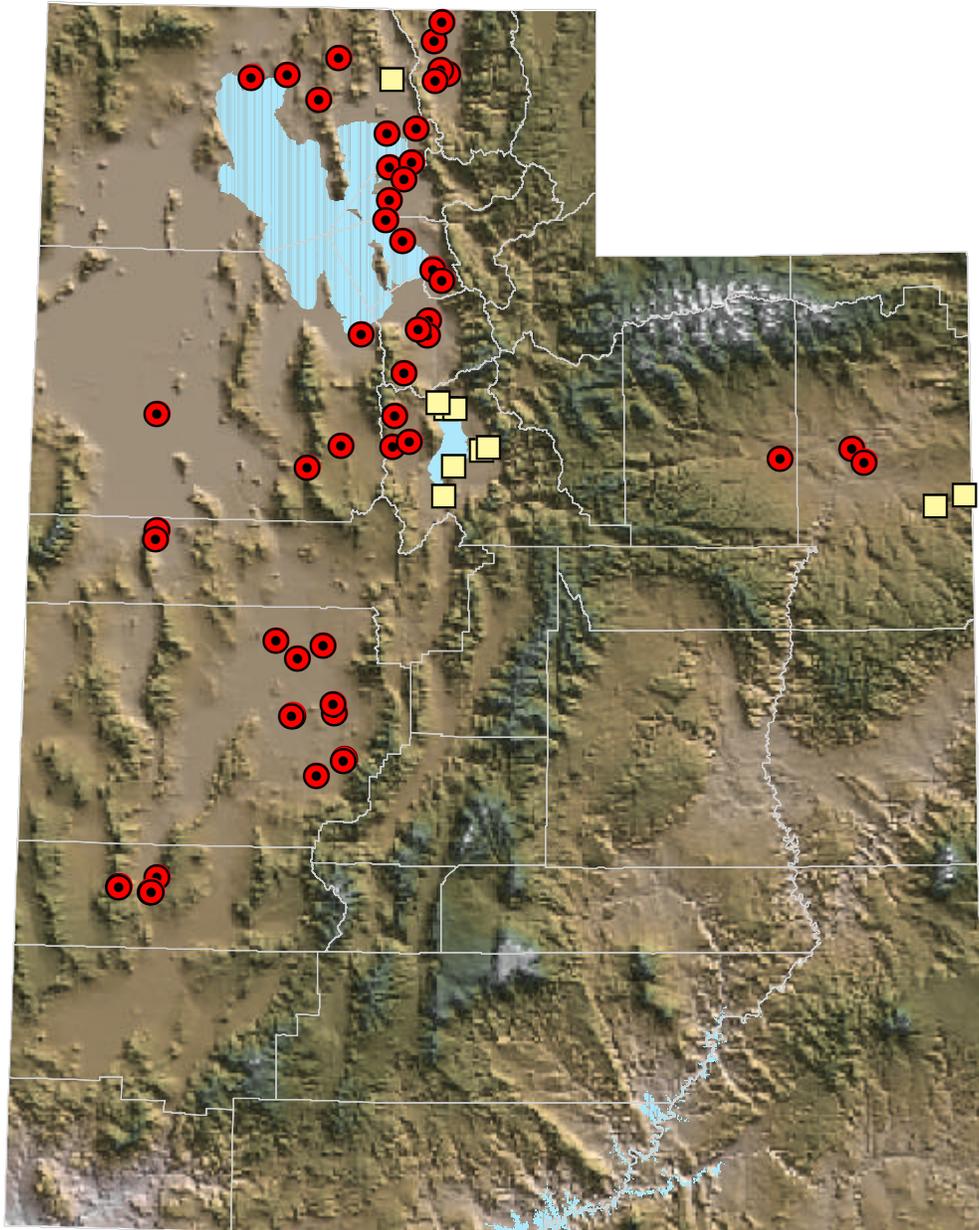


Figure 78. The distribution of records of the short-eared owl (*Asio flammeus*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Black Swift
Cypseloides niger

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Swifts (Apodidae)

SUBSPECIES: The subspecies that occurs in Utah is *Cypseloides niger borealis*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

Nesting sites have been documented in Utah County (Fig. 79) (Knorr 1962). Breeding has yet to be verified elsewhere in the state although several potential sites have been identified in central and south-central Utah (Parrish et al. 2002). Nest site requirements are exceptionally specialized; nests are always found behind waterfalls in dark recesses where the approach to the nest site is high and unobstructed (Knorr 1961).

The total Utah population of this species probably consists of fewer than ten nesting pairs. Population trend is not known. A general threat to habitat suitability is the dewatering of waterfalls at nest sites. Mosquito abatement, pesticide spraying, and other insect control efforts in areas where black swifts occur may be threats to population viability by reducing the prey base as well as making available prey potentially toxic to both adults and nestlings. Human disturbance associated with recreation is potentially a threat to at least one nest site.

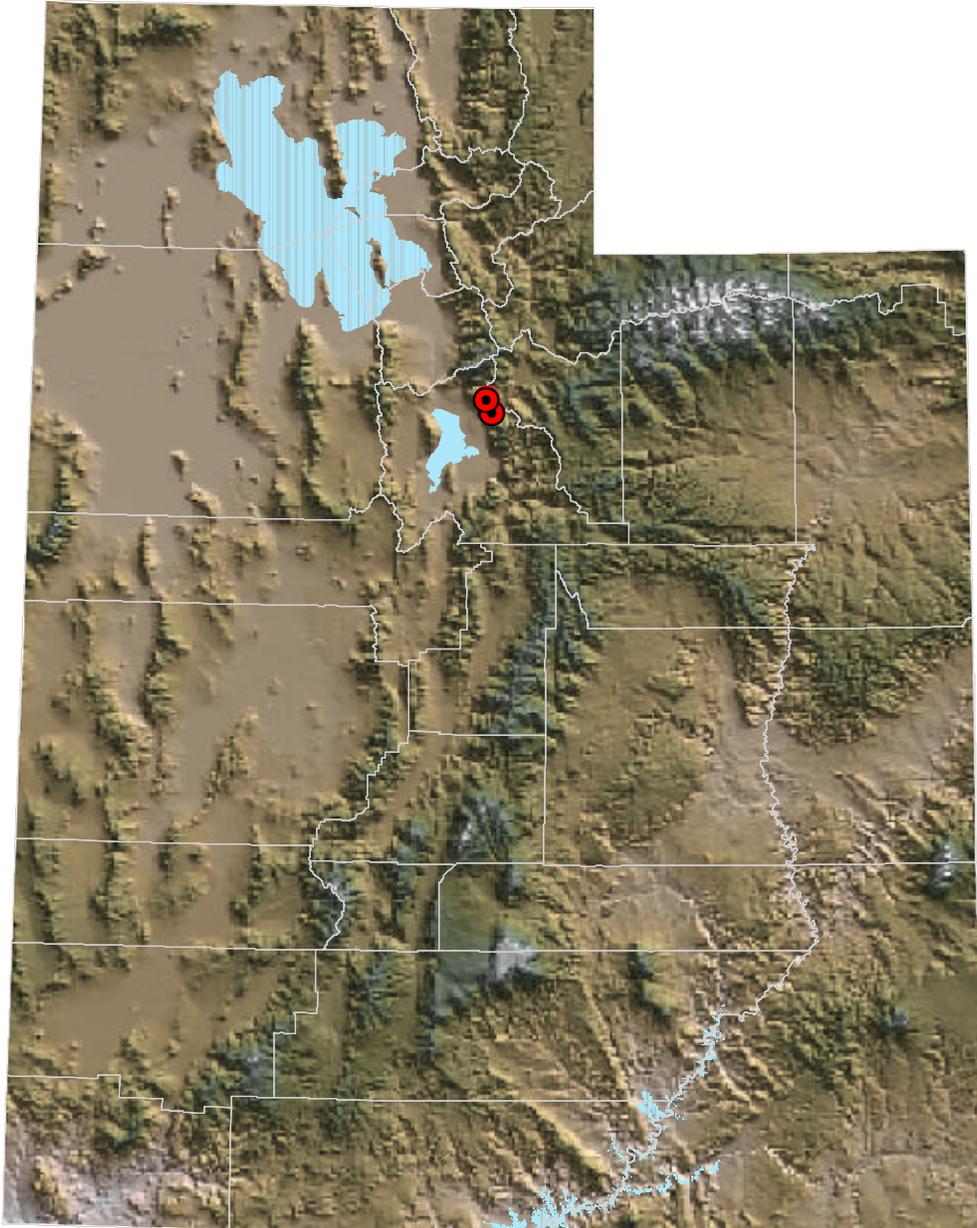


Figure 79. The distribution of records of the black swift (*Cypseloides niger*) that represent confirmed breeding activity.

Lewis's Woodpecker
Melanerpes lewis

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Woodpeckers (Picidae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: Formerly this species was placed in the genus *Asyndesmus* (e.g., Wauer and Carter 1965, Behle and Perry 1975).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

Records during the breeding period have been reported in sparsely scattered localities across much of the state, although very few records suggest that the occurrence of the species in southeast Utah and the interior Bonneville Basin of western Utah is sporadic (Fig. 80). Important breeding habitats comprise ponderosa pine, mountain shrub, and riparian assemblages (Walters and Sorensen 1983).

This species is uncommon (Behle and Perry 1975, Walters and Sorensen 1983, Behle et al. 1985), and populations are thought to have declined from historical levels (Behle et al. 1985). Population declines have been documented in north-central Utah and Zion National Park (Sorensen 1986). Behle et al. (1985) suggested that the apparent decline of populations in Utah could be related to competition with starlings for nest sites. Sorensen (1986) discussed competition with European starlings and agricultural pesticides as possible threats. The degradation and loss of riparian habitat is probably a threat as well.

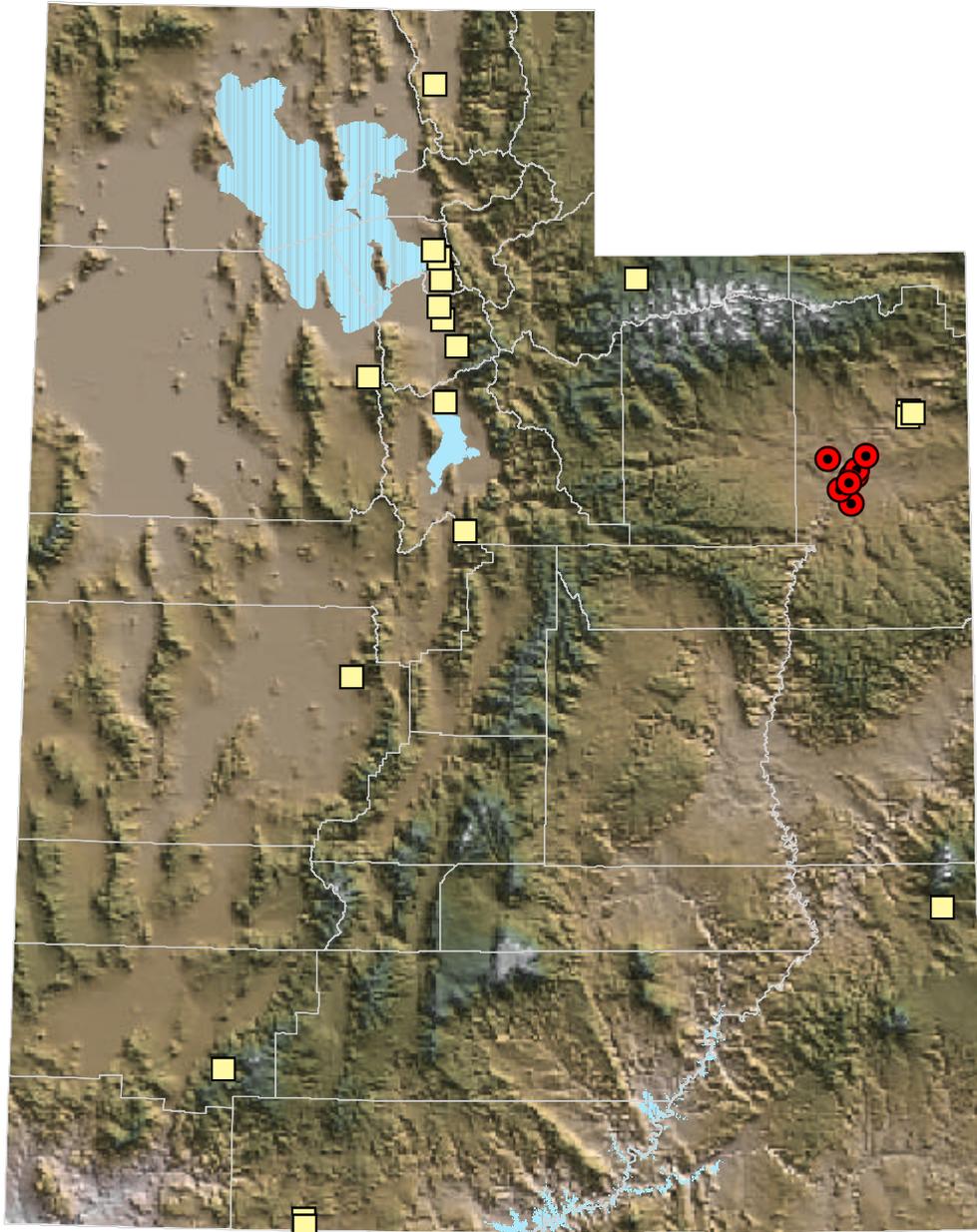


Figure 80. The distribution of records of Lewis's woodpecker (*Melanerpes lewis*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Williamson's Sapsucker
Sphyrapicus thyroideus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

Family: Woodpeckers (Picidae)

Subspecies: The subspecies that occurs in Utah is *Sphyrapicus thyroideus nataliae*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the Wasatch and Uinta mountains of northern Utah, in the mountains and high-elevation plateaus of south-central Utah, and in scattered localities in eastern mountains (Fig. 81). Breeding occurs in montane habitats including coniferous forests, riparian woodlands, aspen stands, and ponderosa pine assemblages (Walters and Sorensen 1983, Behle et al. 1985).

Few data are available to assess population size and trends. Most authorities have considered this species to be uncommon (Hayward et al. 1976, Behle and Perry 1975, Behle et al. 1985). The principal threat to populations is the loss or alteration of forest habitats resulting from forest management practices and altered fire regimes and degradation of riparian habitat related to water withdrawal and livestock overuse.

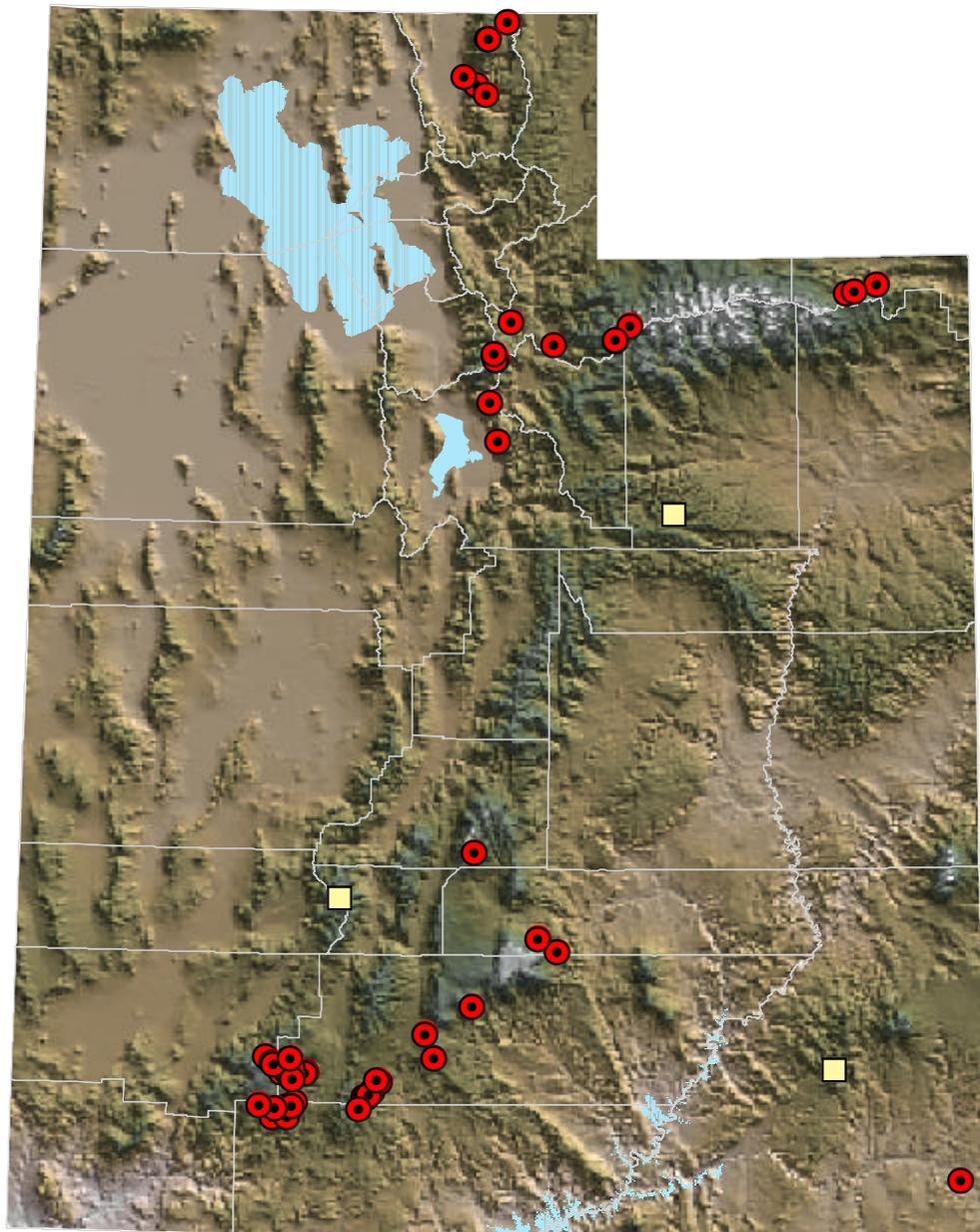


Figure 81. The distribution of records of Williamson's sapsucker (*Sphyrapicus thyroideus*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Three-toed Woodpecker
Picoides tridactylus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Woodpeckers (Picidae)

SUBSPECIES: The subspecies that occurs in Utah is *Picoides tridactylus dorsalis*.

OTHER NAMES: This species was formerly called the Northern Three-toed Woodpecker (Behle and Perry 1975, Hayward et al. 1976, and Behle 1981).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations occur in the Wasatch and Uinta mountains in the north, the La Sal and Abajo mountains in the southeast, and the mountains and high-elevation plateaus in the south-central part of the state (Fig. 82). This species forages primarily on scaly barked conifers, such as lodgepole pine and fir, and breeding habitat is primarily spruce-fir forest (Walters and Sorensen 1983, Parrish et al. 2002).

Few data are available to evaluate population size and trend. Populations tend to be irruptive in response to high food availability, particularly outbreaks of wood-boring beetles. Most authors (Behle and Perry 1975, Hayward et al. 1976, Behle 1981, and Behle et al. 1985) have considered this species to be common in the Uinta Mountains but uncommon elsewhere in Utah. Forest management practices, such as fire suppression and salvage logging associated with beetle infestations, are thought to be threats to populations (Parrish et al. 2002).

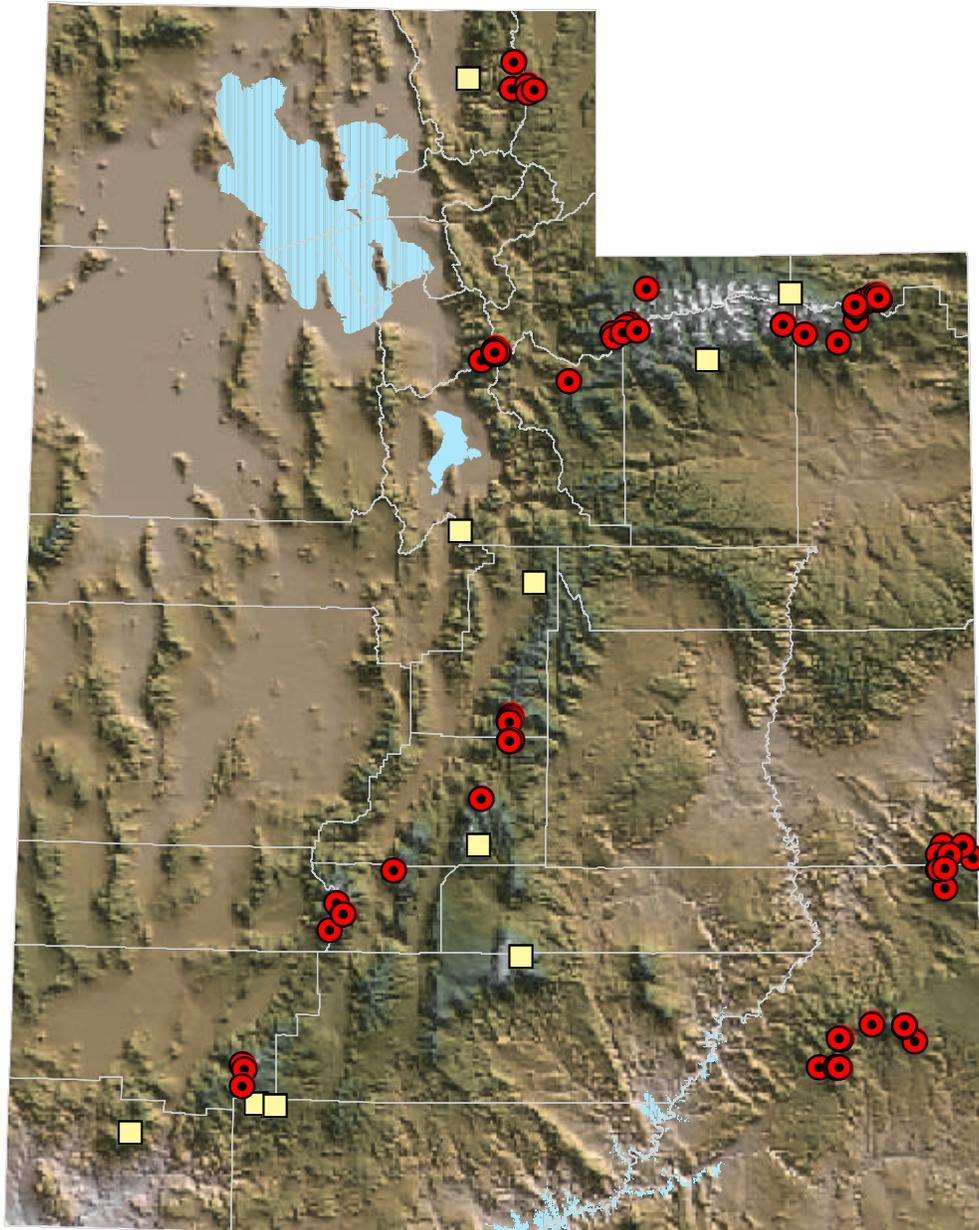


Figure 82. The distribution of records of the three-toed woodpecker (*Picoides tridactylus*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Southwestern Willow Flycatcher
Empidonax traillii extimus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Tyrant Flycatchers (Tyrannidae)

SUBSPECIES: *Empidonax traillii extimus* is a subspecies of the willow flycatcher. The subspecies *extimus* is one of two that breed in Utah. The other, *E. t. adastus*, breeds in the northern half of Utah.

OTHER NAMES: The willow flycatcher was once thought to be conspecific with the alder flycatcher (*Empidonax alnorum*). Prior to the recognition of these taxa as distinct species, both were included in a species called Traill's flycatcher.

Behle (1985) called attention to the fact that earlier Utah reports (e.g., Behle 1943, Woodbury and Russell 1945) assigned examples of the southwestern subspecies (*extimus*) to the subspecies *brewsteri*.

CONSERVATION STATUS DESIGNATIONS

This species was listed as Endangered by USFWS under the federal Endangered Species Act during 1995 (60 Federal Register 10693-10715). A recovery plan has been produced to guide recovery efforts (USFWS 2002e). It is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

The range of this subspecies is uncertain because subspecies are remarkably difficult to identify, particularly in field conditions. The presence of migrants of various subspecies during the early breeding season complicates the interpretation of range. Subspecies may also segregate elevationally, creating a distributional mosaic within a region. For these reasons, the range limits of *extimus* are not definitively known. Most authors consider the subspecies *extimus* to occur in roughly the southern one-tenth of the state. Behle (1985) believed that the subspecies did not occur north of the Virgin, San Juan, and lower Escalante river drainages. The identity of populations to the north of these areas is probably *E. traillii adastus*, but this remains unproven. For conservation purposes, populations occurring in the southern portions of the Colorado Plateau are assigned to this subspecies (Fig. 83). Within this area, nesting sites are in dense riparian vegetation. Typical nesting sites are in dense stands of willows (*Salix* sp.) with cottonwood (*Populus* sp.) gallery forest overstory. In some areas, nonnative salt cedar (*Tamarix* sp.) and Russian olive (*Elaeagnus angustifolia*) trees are interspersed with native willows, and rarely nests occur in dense stands of these species (McDonald et al. 1997).

This subspecies is rare in Utah. Most records of willow flycatchers within the expected range of the southwestern subspecies are of migrants. For example, 25 individuals were detected during surveys in 1996 (McDonald et al. 1997), but this number may include birds of the subspecies *E. t. adastus* or intergrades between *adastus* and

extimus. USFWS (2002e) considered only 3 breeding territories to be extant in the state. Population declines have been evident (USFWS 2002e) and are the result of habitat loss and degradation. Important habitat was lost as a result of the inundation of Glen Canyon (Behle and Higgins 1959). High rates of brood parasitism by brown-headed cowbirds (Lowther 1993) is related to habitat disturbance from livestock. Parasitism rates typically increase when vegetation density decreases and the riparian corridors are narrowed, both of which are associated with riparian habitat degradation. Invasive plant species have also contributed to habitat degradation by competing with native riparian vegetation.

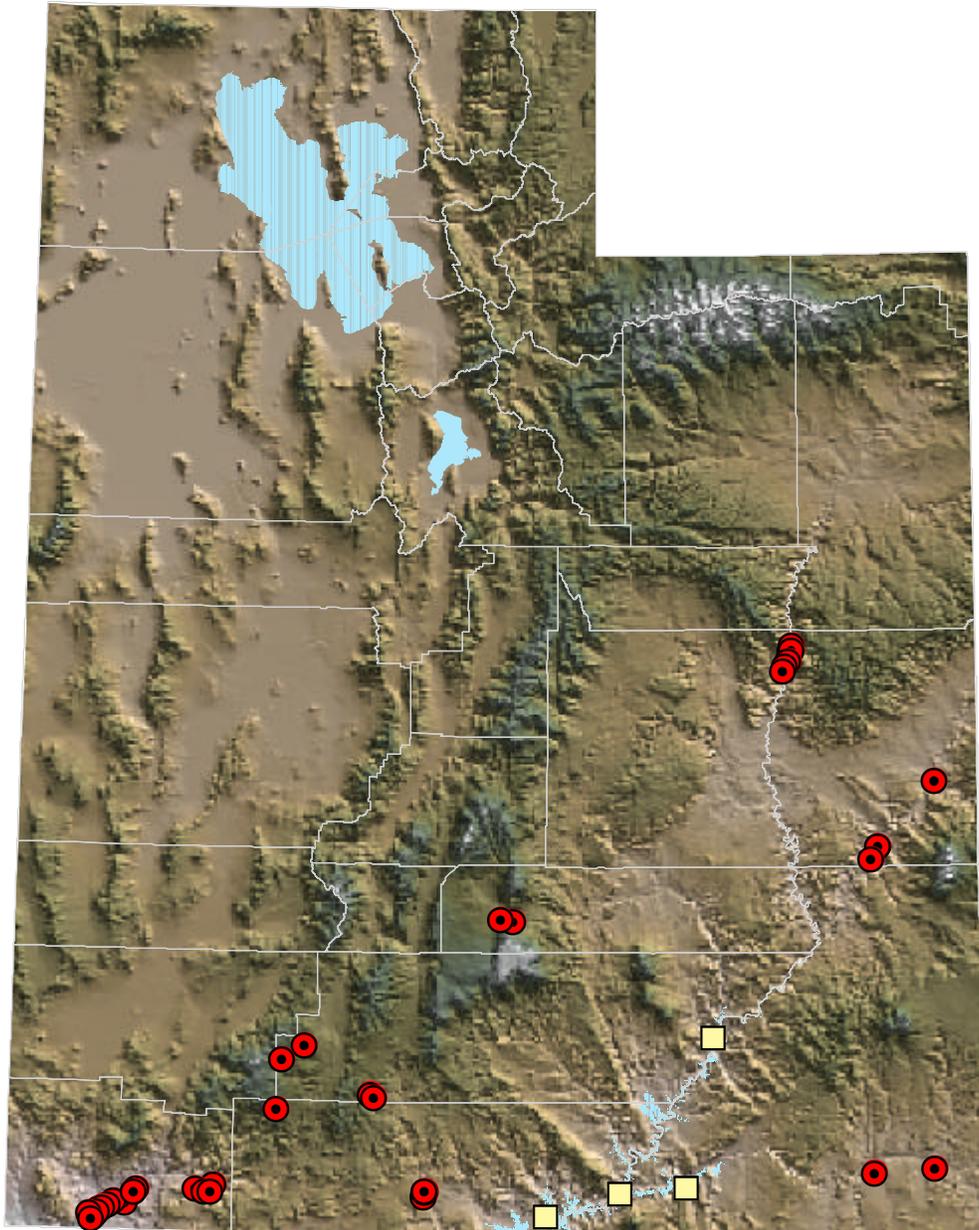


Figure 83. The distribution of records of the southwestern willow flycatcher (*Empidonax traillii extimus*) during the breeding period. Many records may represent late migrants or other non-breeding individuals (see text). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Bendire's Thrasher
Toxostoma bendirei

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Thrashers (Mimidae)

SUBSPECIES: No subspecies are recognized.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Few data are available regarding the status of this species. It appears to breed sparsely in the state. Breeding occurs in open sagebrush and sagebrush-juniper habitat (England and Laudenslayer 1993) and has been definitively documented in Utah and Uintah counties (Fig. 84) (Bee and Hutchings 1942, White et al. 1983). Nesting is also suspected to occur in Washington, Iron, Garfield, Kane, San Juan, Grand, and Tooele counties (e.g., Hayward et al. 1976), but locations and breeding status have generally been poorly documented.

No information is available to suggest the size or trend of the Utah population. Degradation of habitat associated with introduced plant invasions, disturbance to sagebrush steppe habitat from livestock use, and altered fire regimes have the potential to affect the viability of breeding populations.

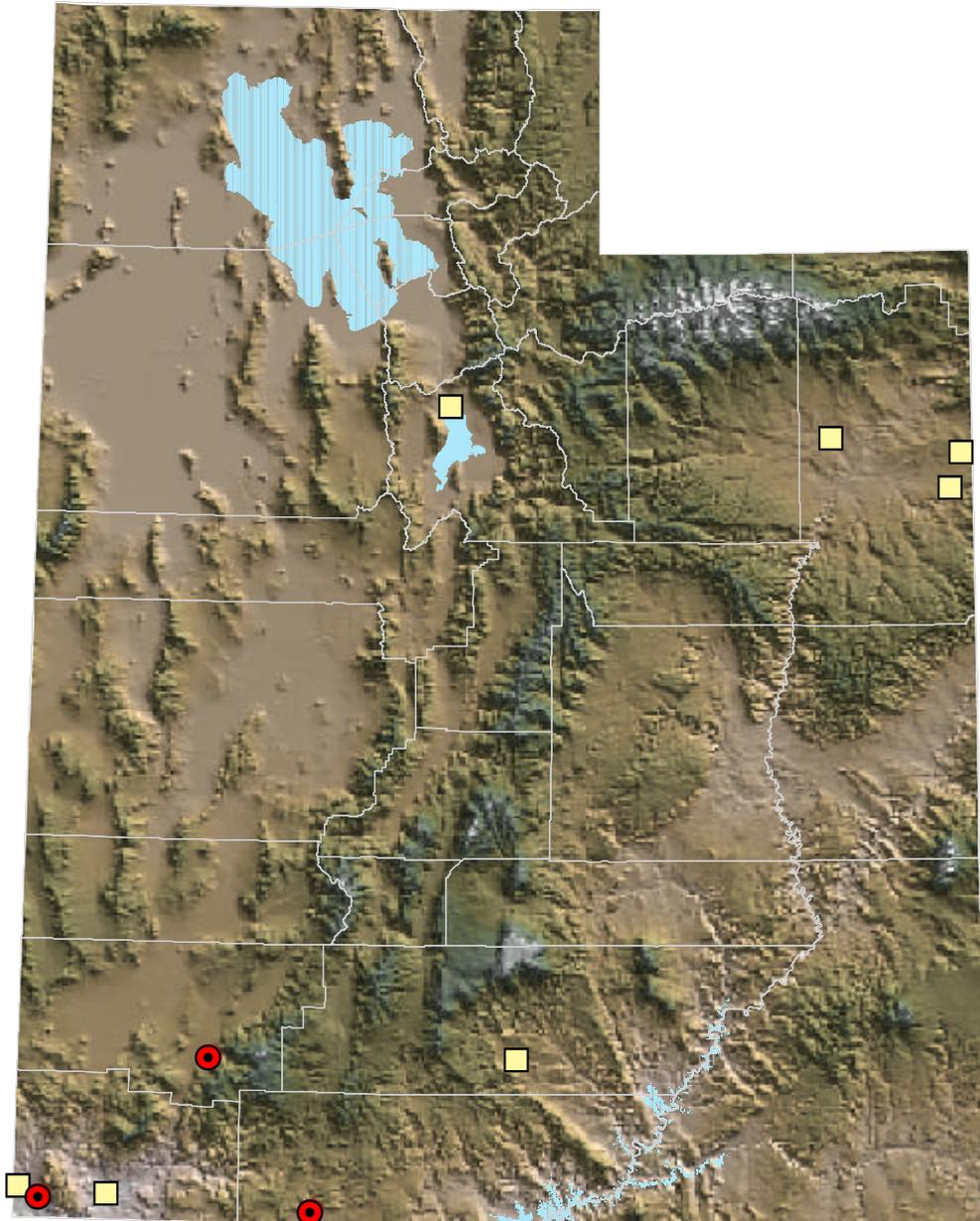


Figure 84. The distribution of records of Bendire's thrasher (*Toxostoma bendirei*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Crissal Thrasher
Toxostoma crissale

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Thrashers (Mimidae)

SUBSPECIES: The subspecies that occurs in Utah is *Toxostoma crissale coloradense*.

OTHER NAMES: The name *Toxostoma dorsale* was formerly used in reference to this species (e.g., Woodbury et al. 1949, Behle and Perry 1975, Hayward et al. 1976, Behle 1976, Walters and Sorensen 1983).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the southwestern corner of the state in the Virgin River Valley, mainly in southwestern Washington County, but also in the western part of that county and with at least one observation at Kanab, Kane County (Fig. 85) (Hayward et al. 1976, Behle et al. 1985). Woodbury et al. (1949) said that in Utah this species inhabits "tall brush or streamside trees in low hot valleys." Walters and Sorensen (1983) listed the breeding and wintering habitats as Joshua tree, creosote bush, and blackbrush, and desert riparian woodlands (including Fremont cottonwood, willows, etc., at lower elevations).

This species has been considered to be uncommon (Hayward et al. 1976, Behle et al. 1985), and population trend is unknown. Habitat loss, primarily through urban expansion and development, is likely to be the primary threat to the viability of populations (Cody 1999). Because this species is typically found on or near the ground, it may be especially susceptible to predation by domestic cats. Invasive weeds may potentially compromise habitat suitability in some areas.

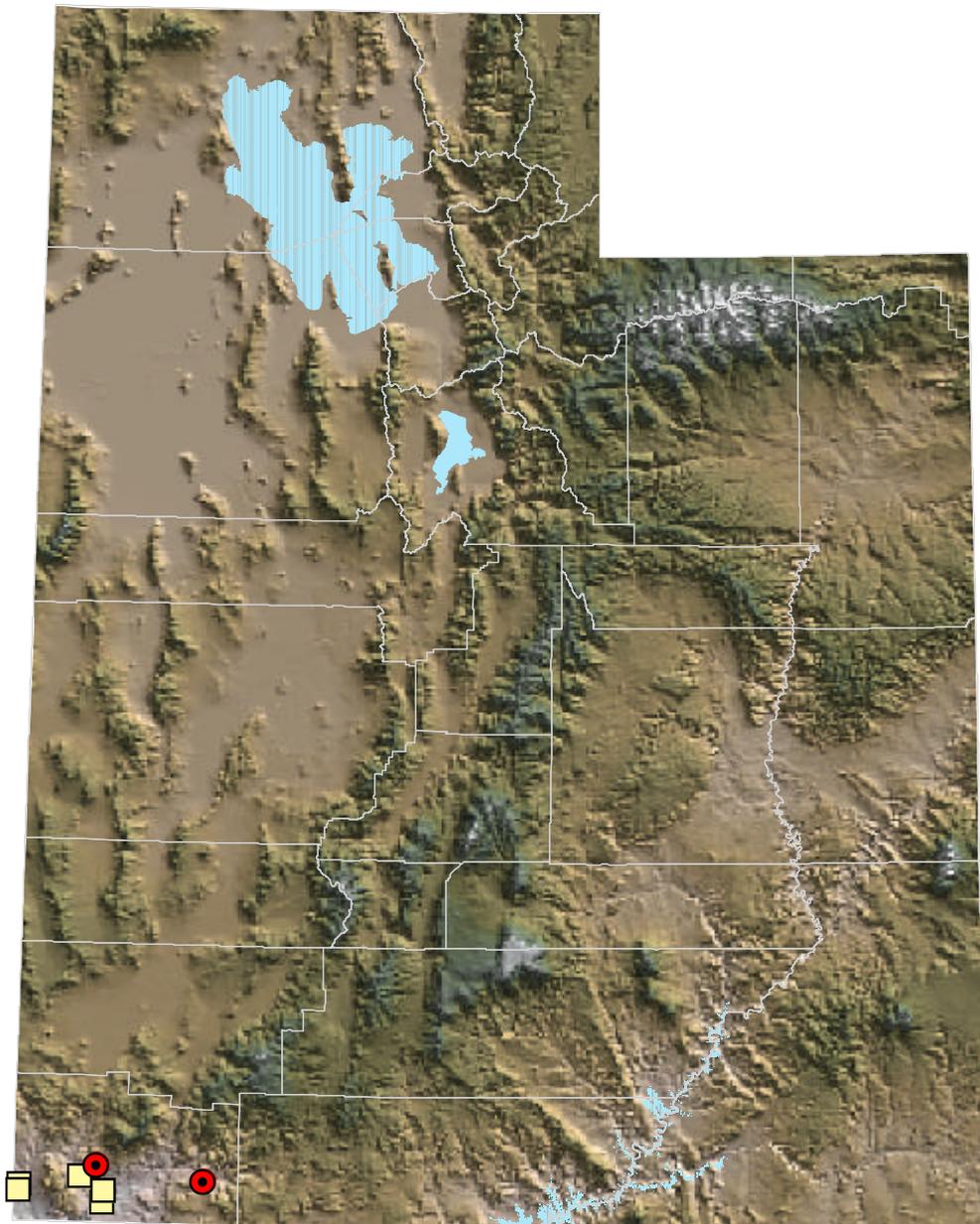


Figure 85. The distribution of records of the crissal thrasher (*Toxostoma crissale*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Bell's Vireo
Vireo bellii

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Vireos (Vireonidae)

SUBSPECIES: The subspecies of this species that occurs in Utah is *Vireo bellii arizonae*.

CONSERVATION STATUS DESIGNATIONS

Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the Virgin River valley of southern Washington County (Fig. 86) where it is associated with brushy riparian zones at lower elevations. Woodbury et al. (1949) reported this species to occur "along Virgin River streamside willows and tamarix."

This species is rare or uncommon during the breeding season (Hayward et al. 1976, Behle 1976, Behle et al. 1985). Behle (1976) stated: "This is an uncommon species in southwestern Utah but enough records exist to suggest that it occurs regularly and has breeding status." Behle et al. (1985) considered it to be generally rare, "but common in Beaver Dam Wash." Population trend is unknown. Brown (1993) pointed out: "In sw U.S., riparian habitat modifications--including agriculture, urbanization, firewood cutting, grazing, flood control projects, and reservoir construction--have reduced habitat for this species." Also, nests of this species are heavily parasitized by brown-headed cowbirds (Lowther 1993, Brown 1993), which are favored by human alterations of the environment such as clearing of woody vegetation, agriculture, and ranching. Brown (1993) commented: "High rates of brood parasitism by Brown-headed Cowbirds (*Molothrus ater*) and habitat loss and change have negatively affected nesting vireos in the southwestern United States, causing reduction or extirpation of local populations."

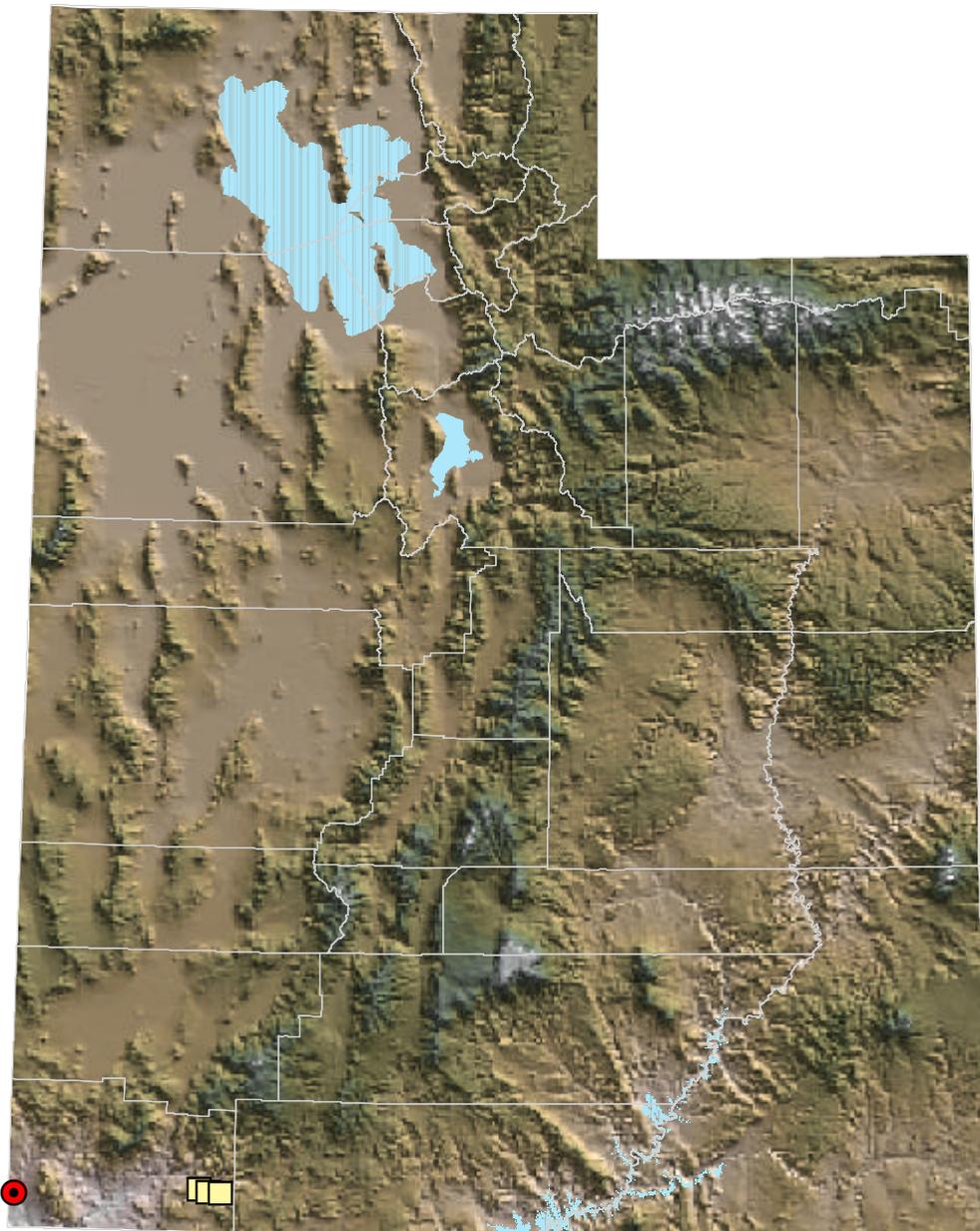


Figure 86. The distribution of records of Bell's vireo (*Vireo belli*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Abert's Towhee
Pipilo aberti

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Sparrows and Old World Buntings (Emberizidae)

SUBSPECIES: No subspecies are currently recognized (Tweit and Finch 1994).

CONSERVATION STATUS DESIGNATIONS

Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southern Washington County (Fig. 87), primarily along the Virgin River below LaVerkin and lower Santa Clara River below Gunlock Reservoir (Hayward et al. 1976, Behle et al. 1985, Tweit and Finch 1994). In this area, breeding occurs in riparian woodlands with dense shrubs. Historically, riparian habitat was primarily cottonwood stands with dense willow understories. Currently, most native riparian vegetation has been replaced with dense stands of salt cedar (*Tamarix* sp.) (Parrish et al. 2002).

This species may be locally common in appropriate breeding habitat. Historically, most authors considered the species to be common within the Utah range (Behle 1976, Behle et al. 1985). Populations, however, have declined precipitously in recent years in response to habitat loss and degradation. Some population decline has resulted from the almost complete loss of native riparian habitat along the lower elevations of the Virgin River drainage. Overgrazing by livestock has led to the loss or thinning of understory shrubs. Habitat loss resulting from urban expansion and residential development has been prevalent along the Virgin River (Tweit and Finch 1994).

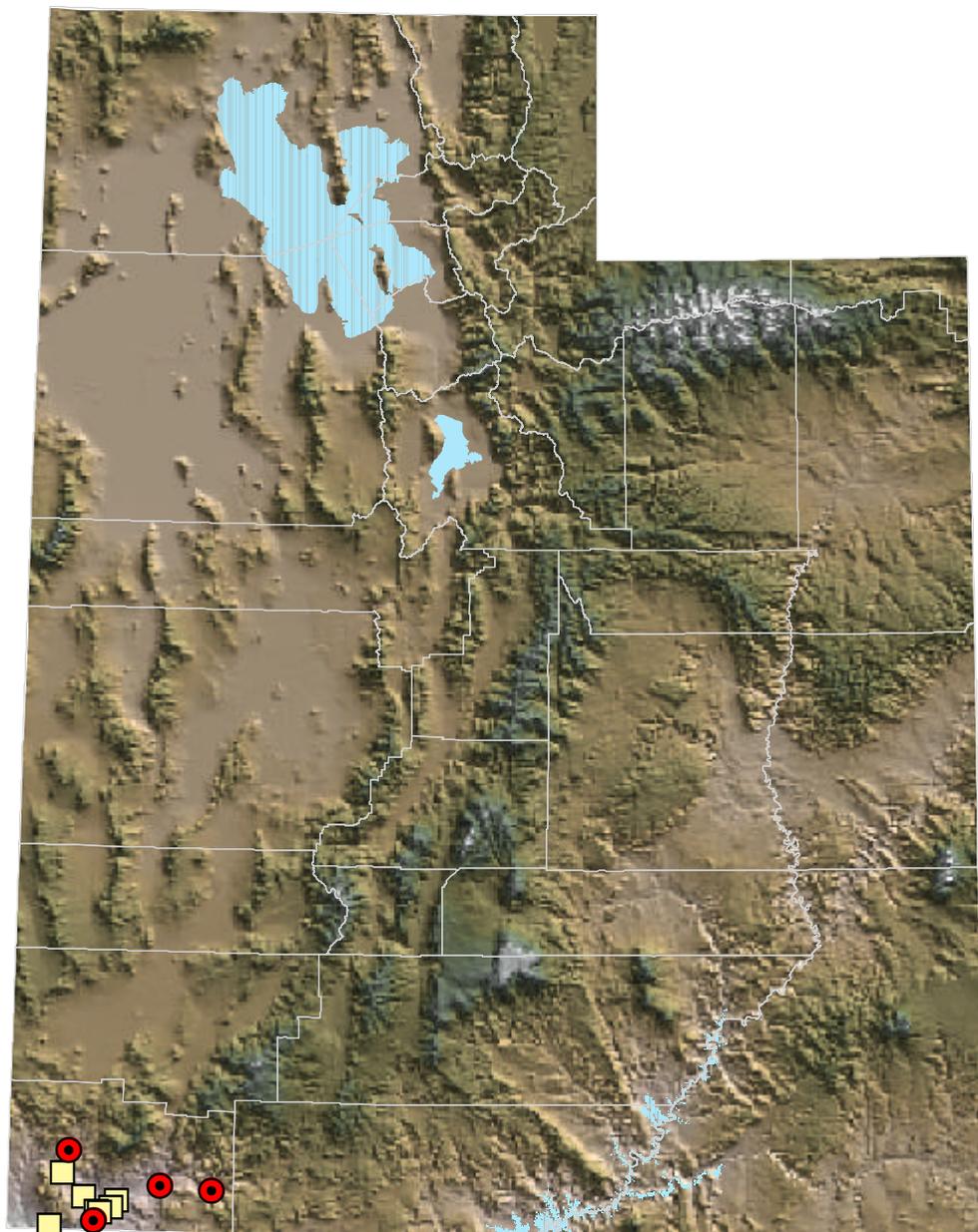


Figure 87. The distribution of records of Abert's towhee (*Pipilo aberti*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Grasshopper Sparrow
Ammodramus savannarum

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Sparrows and Old World Buntings (Emberizidae)

SUBSPECIES: The subspecies that occurs in Utah is *Ammodramus savannarum perpallidus*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species formerly occurred throughout much of northern Utah (Fig. 88) (Woodbury et al 1949, Hayward et al. 1976). The possibility of breeding in the Uinta Basin was implied by Behle (1981). Breeding is now limited to a few sites (Behle et al. 1985, Ryser 1985, Goodell and Howe 1999). Within this range, nesting is in grasslands where the habitat is in an early successional stage with short grasses and shallow litter (Goodell and Howe 1999, Walters and Sorensen 1983).

Population estimates have not been produced (Goodell and Howe 1999). Most authors have considered it to be a rare species during recent years (e.g., Hayward et al. 1976, Behle et al. 1985). Declines have been evident, particularly during the early 1900s (Goodell and Howe 1999). Hayward et al. (1976) commented of this species in Utah: "Formerly a common breeder in the valleys of northern Utah" Loss and degradation of habitat is the greatest threat to this species in Utah. Hayward et al. (1976) wrote: "Early observers reported that this bird lived in the dry grassy plains. Since most of the dry grasslands in Utah were soon taken up for farmlands or else were heavily overgrazed, it is likely that the species' disappearance was a result of the loss of its native habitat." Similarly, Behle (1981), discussing its presence in the Uinta Basin of northeastern Utah, said that "decades of overgrazing have extirpated the requisite habitat of the species" Vickery (1996) stated: "Habitat loss, fragmentation, and degradation are the primary reasons for Grasshopper Sparrow declines in North America." During recent years, birds have been found to use lands enrolled in the Conservation Reserve Program, especially in areas that have not been used in more than a decade (F. Howe, UDWR, pers. comm.).

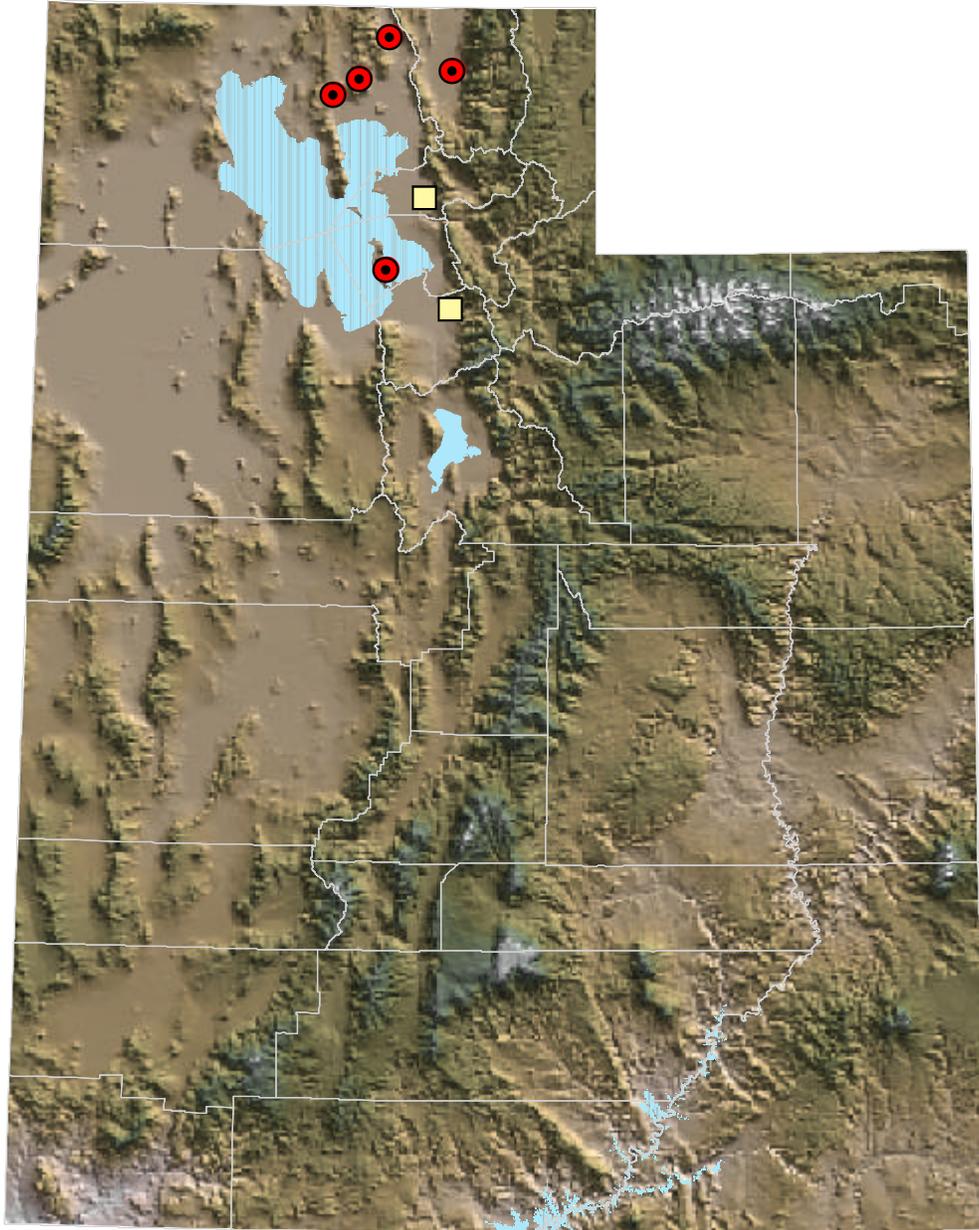


Figure 88. The distribution of records of the grasshopper sparrow (*Ammodramus savannarum*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Bobolink
Dolichonyx oryzivorus

TAXONOMY AND NOMENCLATURE

CLASS: Birds (Aves)

FAMILY: Sparrows and Old World Buntings (Emberizidae)

SUBSPECIES: No subspecies are recognized.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003). Utah Partners in Flight identifies it as a Priority Species (Parrish et al. 2002).

DISTRIBUTION AND ABUNDANCE IN UTAH

Breeding sites are found primarily along the Wasatch Mountains of north-central Utah (Fig. 89). Recent data (not yet mapped) confirm the presence of a population along the Duchesne River (F. Howe, UDWR, pers. comm.). Breeding usually occurs in wet meadows or flooded pastures and fields (Hayward et al. 1976, Behle et al. 1985, Smith 1995, Goodell and Howe 1999) that are vegetated with short to medium-height grasses and sedges (Goodell and Howe 1999).

Populations are generally small and localized. Goodell and Howe (1999) found 43 birds at 5 occupied sites, with an average of 8.6 birds found per site. Numbers may vary annually with habitat conditions (Behle and Perry 1975, Smith 1995). Population declines have been noted by several authors (e.g., Hayward et al. 1976, Smith 1995, Goodell and Howe 1999). Probably the greatest threats to this species in Utah are habitat loss and degradation. Habitat patches have been lost through agricultural and residential development, particularly in wetlands along the northern Wasatch Front. Breeding success is compromised by field mowing (Martin and Gavin 1995, Smith 1995, Goodell and Howe 1999) and repeated mowing during breeding periods can lead to the eventual extirpation of populations.

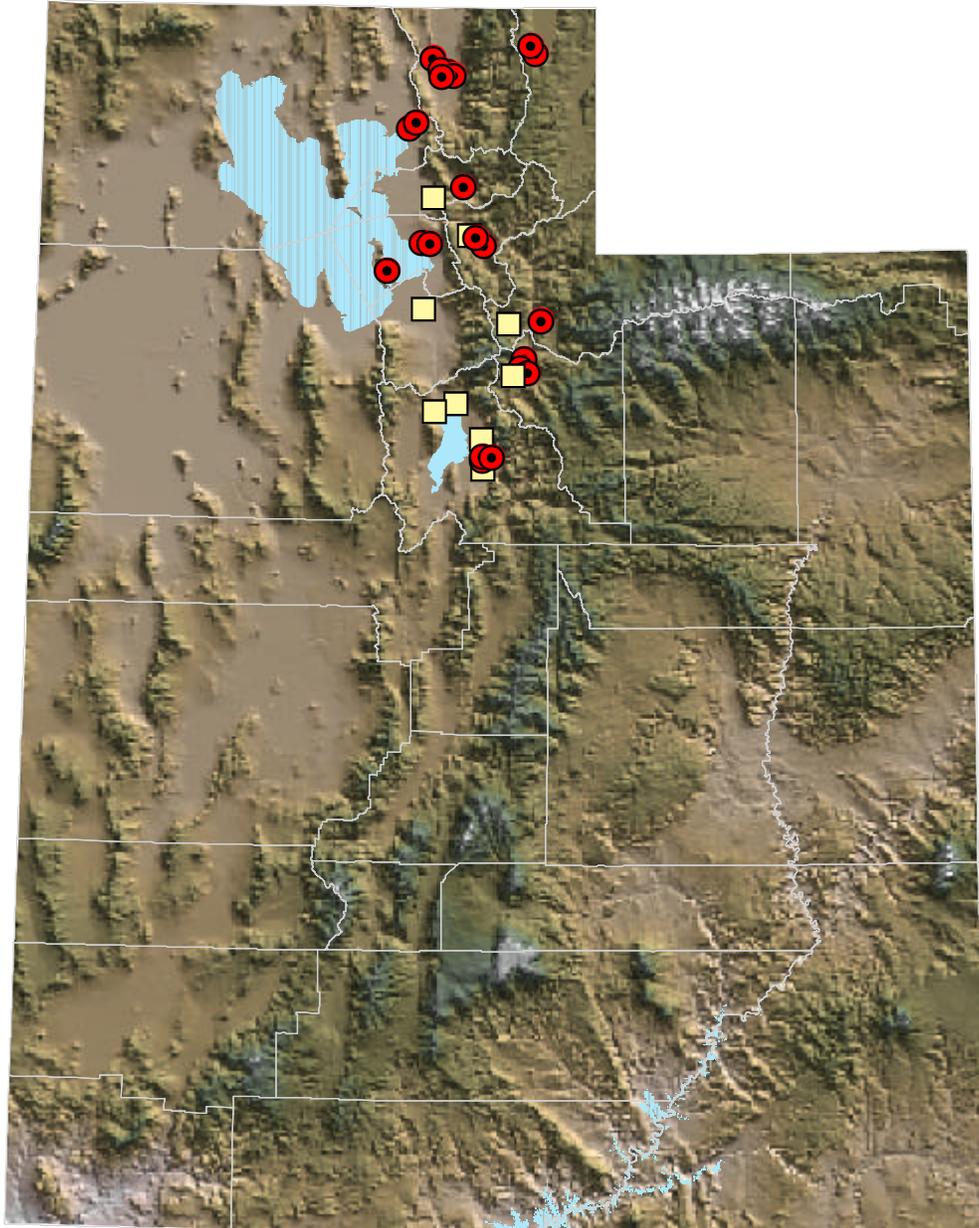


Figure 89. The distribution of records of the bobolink (*Dolichonyx oryzivorus*) that represent probable or confirmed breeding activity. Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Mammals

Preble's Shrew
Sorex preblei

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Shrews (Soricidae)

SUBSPECIES: No subspecies have been proposed.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species has been documented in only two localities, both in Tooele County (Fig. 90) (Tomasi and Hoffmann 1984, Pritchett and Pederson 1993). Both sites are associated with wetlands. Tomasi and Hoffmann (1984) described the habitat at a collection site: "... at an elevation of 1,284 m; the soil is wet and alkaline. Dominant vegetation is saltgrass (*Distichlis*), grading into a narrow band of pickleweed (*Salicornia*) and iodine bush (*Allenrolfea*), and then into a salt-desert scrub community dominated by greasewood (*Sarcobatus*)." They noted that "[e]xcept for its high salinity, this habitat is similar to habitats described for most other capture localities of *S. preblei*." Pritchett and Pederson (1993) captured this species in Utah at an elevation of 4,250 ft (1,295 m); they characterized the habitat as "desert saltgrass/peat soil--semi moist", and the major plant species at the site were desert saltgrass, water smartweed, rabbitfoot grass, foxtail barley, and Nuttall alkaligrass. Some authors have suggested that this species prefers areas "around springs, bogs, marshes, and along streams" (Larrison and Johnson 1981). The Utah localities fit this generalization, but in Wyoming individuals have been captured in sagebrush steppe habitat (Kirkland et al. 1997), suggesting that an understanding of the Utah distribution is limited by sampling effort.

This is one of the most rarely encountered animals in Utah, only four individuals having been detected in this state (Tomasi and Hoffmann 1984, Pritchett and Pederson 1993). Little is known about this species, not only in Utah but throughout its range, and population trends are unknown. These wetland habitats, occurring amidst arid upland habitat, are the focus of considerable anthropogenic disturbance and are vulnerable to impacts from livestock and other agricultural uses.

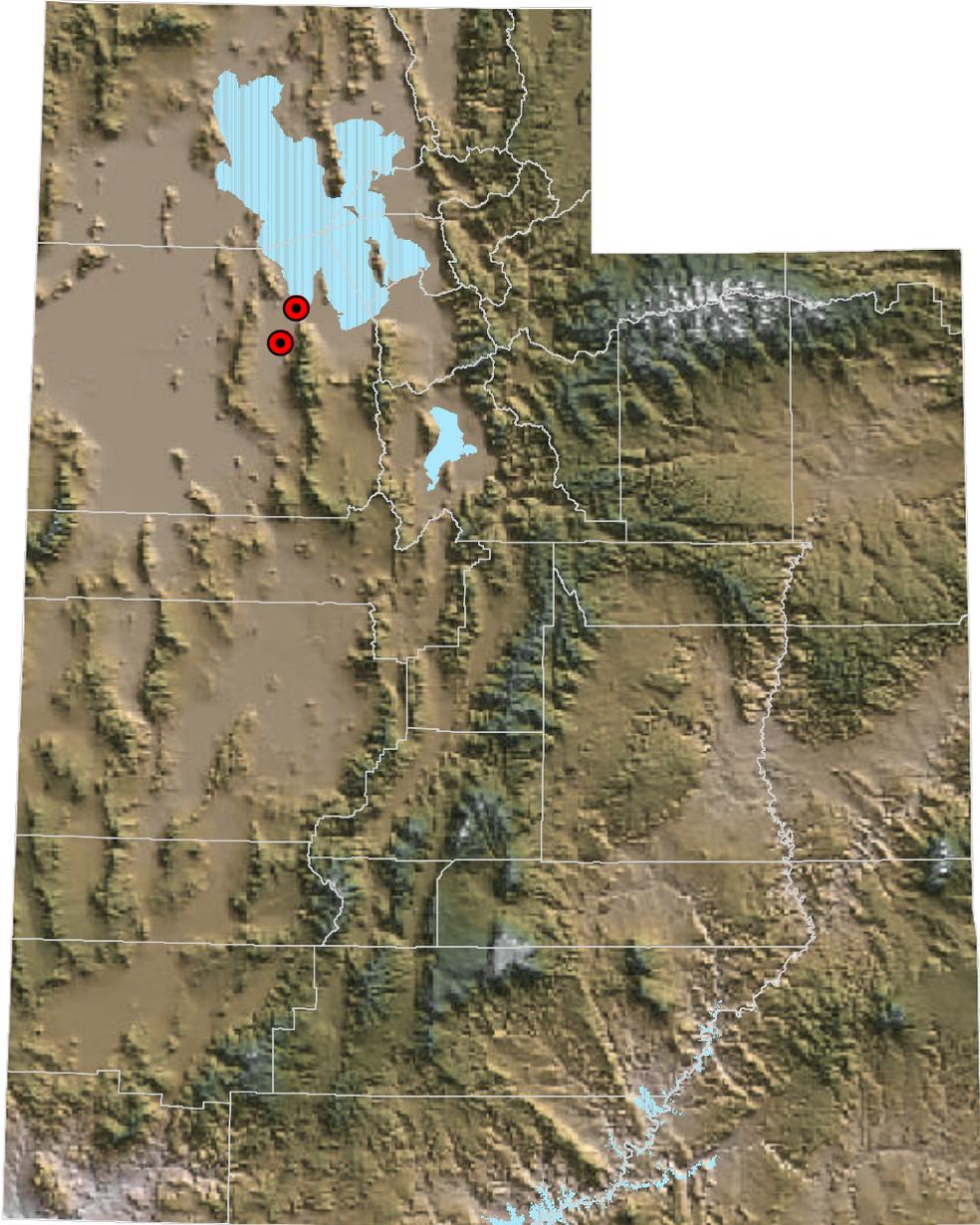


Figure 90. The distribution of records of Preble's shrew (*Sorex preblei*).

Dwarf Shrew
Sorex nanus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Shrews (Soricidae)

SUBSPECIES: No subspecies are recognized.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the Abajo, Uinta, and La Sal mountains (Fig. 91). This species is often captured in high-elevation rocky habitat, particularly in steep talus fields (Rickart and Heaney 2001). Durrant and Lee (1955) captured an individual in a rocky area in mesic habitat dominated by aspen (*Populus tremuloides*), Gambel's oak (*Quercus gambelii*), and mountain snowberry (*Symphoricarpos oreophilus*) at an elevation of 8,560 ft. Pritchett et al. (1990) found the species associated with a talus slope at 10,740 with associated low-growing alpine forbs and shrubs and Engelmann spruce. At another site, an individual was captured in an alpine riparian zone dominated by willows, sedges, and forbes at an elevation of 10,600 ft.

This species is rarely encountered in Utah, with only a few individuals having been encountered (Durrant and Lee 1955, Kirkland 1981, Pritchett et al. 1990, Rickart and Heaney 2001). This apparent rarity, however, may be the result of a localized population distribution combined with low sampling effort in remote and rugged terrain in which populations occur (Hoffman and Owen 1980). Population trend of this species in Utah is not known. The inaccessibility and unsuitability of its habitat for human uses may afford the species some degree of protection from anthropogenic threats. However, the alpine habitats in which this species is found are often ecologically fragile and slow to regenerate from disturbance.

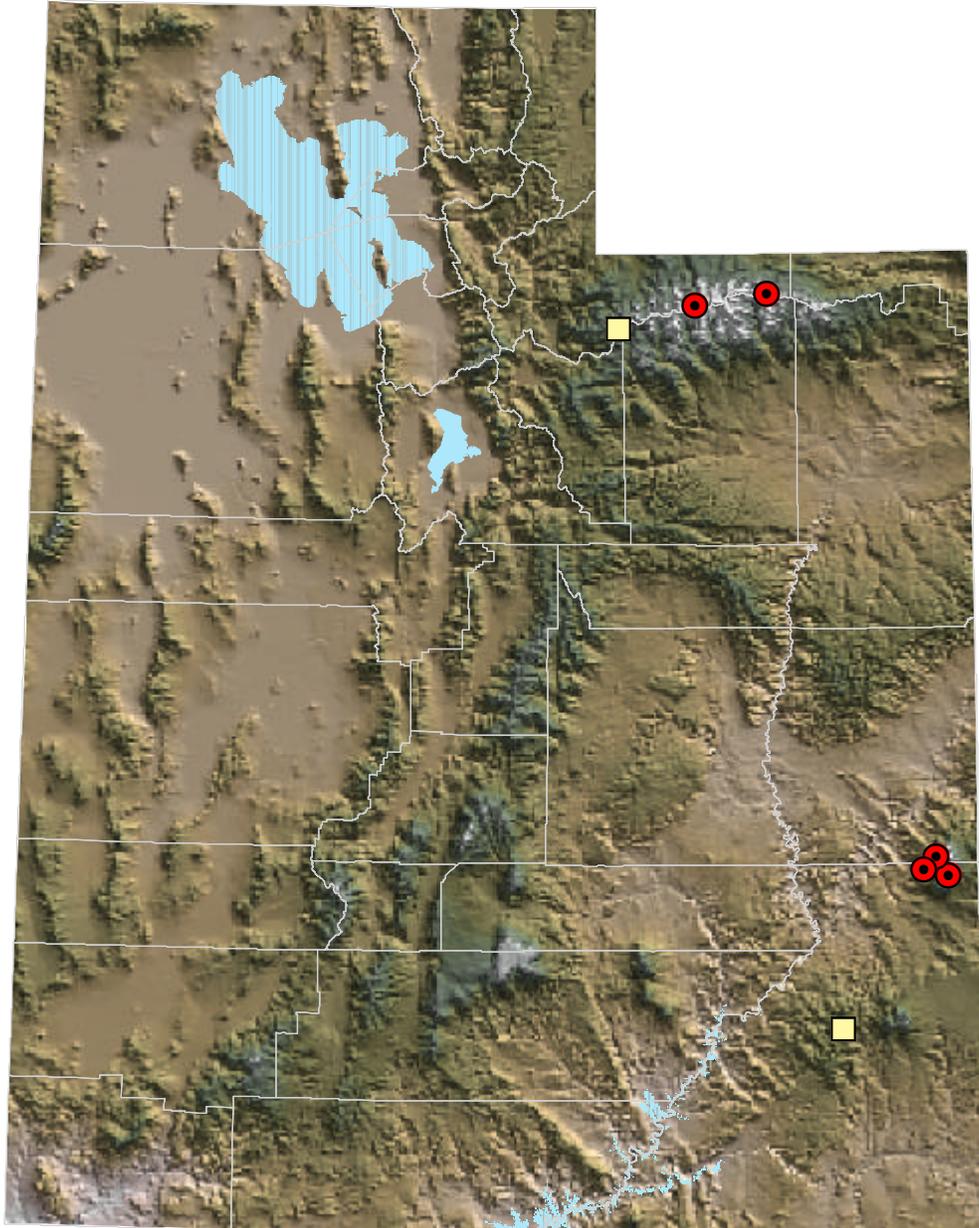


Figure 91. The distribution of records of the dwarf shrew (*Sorex nanus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Merriam's Shrew
Sorex merriami

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Shrews (Soricidae)

SUBSPECIES: The subspecies *Sorex merriami leucogenys* occurs in at least southern Utah and perhaps statewide. This taxon was described by Osgood (1909) from a specimen collected in Beaver County, Utah. The single specimen that has been found in northern Utah (Rich County) was assigned to the subspecies *Sorex merriami merriami*, but this identification was made on the basis of the predicted range of the subspecies *merriami* rather than morphological characters (Jensen 1965).

OTHER NAMES: Early works (e.g., Osgood 1909, Benson 1935) called this species *S. leucogenys*, the white-cheeked shrew. The taxon *leucogenys* is now considered to be a subspecies of *Sorex merriami*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Of the six known localities for this species in Utah, five are in the southern quarter of the state (Beaver, Piute, and San Juan counties) and one is in north-central Utah (Fig. 92) (Rich County). Additional sampling effort would likely reveal additional populations, and the species potentially occurs statewide in appropriate habitat (Hall 1981, Diersing and Hoffmeister 1977). Individuals have been captured in dry mountain shrub habitat (Benson 1935), a dry mountain meadow of grasses and sedges (Durrant and Lee 1955), and sagebrush- and grass-dominated habitats (Jensen 1965). Dry sagebrush associations are considered to be typical habitat for this species by Armstrong and Jones 1991). Some of the individuals captured in the state have been found in rodent runways (Benson 1935, Durrant and Lee 1955).

Only 12 specimens are known to have been collected in Utah. Population sizes and trends are not known. Degradation of dry montane and shrub steppe assemblages arising from nonnative plant invasions and livestock overuse is likely to be the most important threat to habitat suitability. In their report on this species in Utah, Durrant and Lee (1955) noted that individuals that they encountered were associated with habitat protected from grazing.

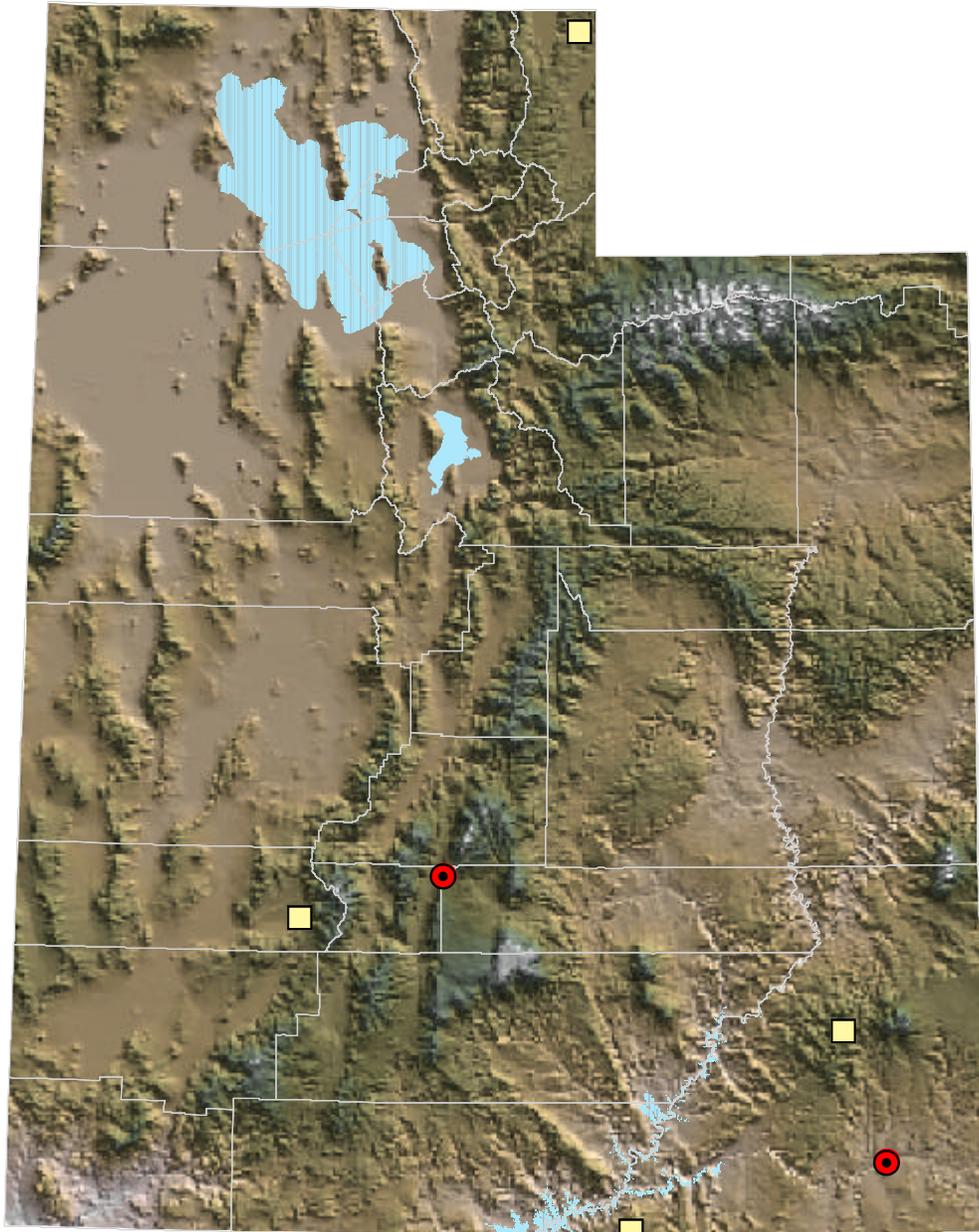


Figure 92. The distribution of records of Merriam's shrew (*Sorex merriami*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Desert Shrew
Notiosorex crawfordi

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Shrews (Soricidae)

SUBSPECIES: The subspecies of this species that occurs in Utah is type subspecies, *Notiosorex crawfordi crawfordi*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species has been found in Washington County (Wauer 1965, Turkowski and Brown 1969) and in Garfield County (Fig. 93) (Hoddenbach 1978). These localities are at the northern limit of the range for this species (Armstrong and Jones 1972). Because this species is difficult to detect, the range is often assumed to be larger than available records would suggest. Hall (1981) mapped the range to include all of southern Utah (southern Washington, Kane, and San Juan counties), though it has not yet been documented to occur in either Kane or San Juan counties. Hoddenbach (1978) expected that the range could extend north into Emery County on the basis of climate and geography. Wauer (1965) reported one specimen found on a lawn bordered by Gambel's oak (*Quercus gambellii*) and big sagebrush (*Artemisia tridentata*). Hoddenbach (1978) captured an individual "at an elevation of 1,520 m" and "[t]he capture site, about 3 m above a flood plain, is in a semi-arid, *Atriplex* (shadscale)-dominated community"

This species is apparently rare in Utah. Only three individuals are documented. However, this is a secretive species that is difficult to sample and often escapes detection; it may be more common than records have thus far indicated. The species has not been detected in Utah since 1974, but this may be an artifact of low sampling effort. Available data are ultimately insufficient to determine the population trend. Threats to this species in Utah are not known.

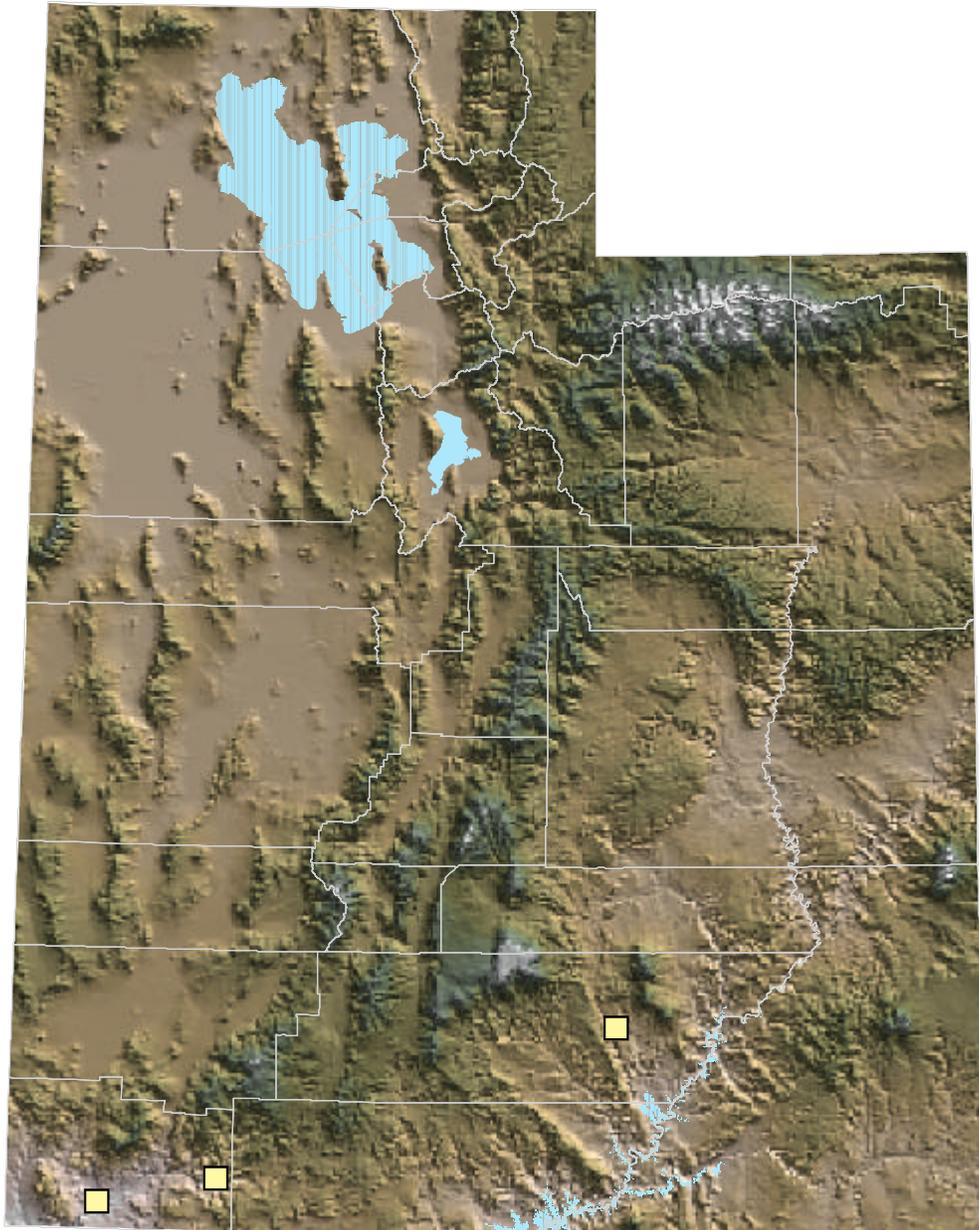


Figure 93. The distribution of records of the desert shrew (*Notiosorex crawfordi*).

Fringed Myotis
Myotis thysanodes

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Vespertilionid Bats (Vespertilionidae)

SUBSPECIES: The type subspecies, *Myotis thysanodes thysanodes*, occurs in Utah.

OTHER NAMES: Durrant (1952) called this species the fringe-tailed myotis. Hasenyager (1980) called this species the fringed bat.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This bat occurs primarily within the Colorado Plateau of southern and eastern Utah (Fig. 94), although records of the species in west-central (Juab County) and northern (Cache County) Utah are known. Some authors have considered the species to be statewide in distribution (e.g., O'Farrell and Sudier 1980). Individuals have been encountered in varied habitats, including mixed conifer and aspen, desert riparian, and pinyon-juniper. Populations tend to be associated with areas having rocky outcroppings, cliffs, and canyons. Hasenyager (1980) wrote: "In Utah, the fringed bat inhabits caves, mines, rock crevices and buildings in the pine-oak, pinyon-juniper and desert shrub habitats between the elevations of 1,217 and 2,438 m." Foster et al. (1996) captured individuals foraging in sagebrush- and grass-dominated montane meadows amid ponderosa pine, aspen, and Douglas fir forests.

This species is uncommonly encountered, and population size and trend is unknown. Threats to populations are poorly understood. Water sources and riparian areas are important for this bat species, and disturbance or destruction of these habitat elements could affect habitat suitability. Human disturbance of roosts in caves, mines, and buildings, especially maternity colonies, is a potential threat to populations.

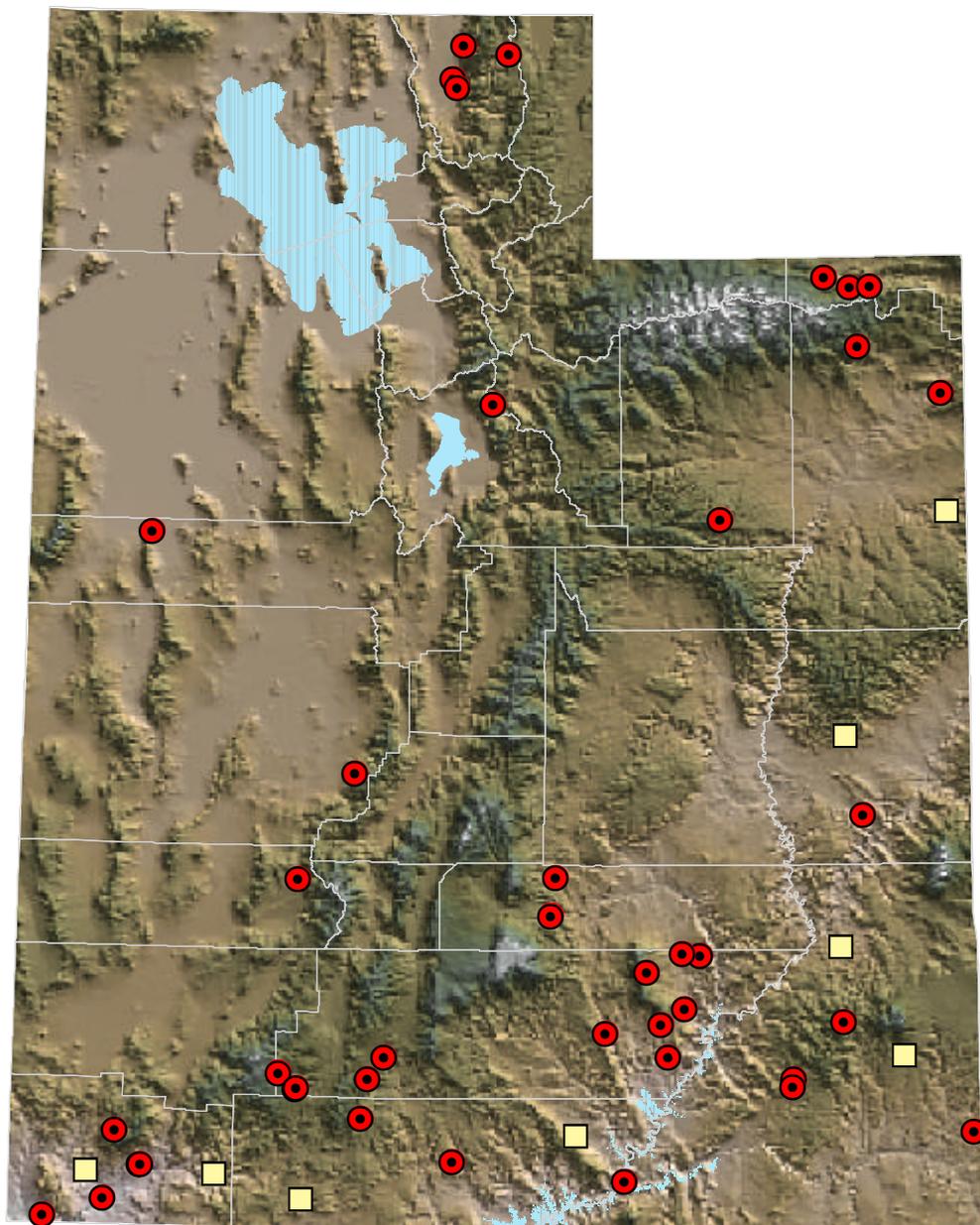


Figure 94. The distribution of records of the fringed myotis (*Myotis thysandodes*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Western Red Bat
Lasiurus blossevillii

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Vespertilionid Bats (Vespertilionidae)

SUBSPECIES: The subspecies that occurs in Utah is *Lasiurus blossevillii frantzii*.

OTHER NAMES: This species was formerly considered to be a subspecies of *Lasiurus borealis*. Hall and Kelson (1959) and Hall (1981) placed it in the genus *Nycteris*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This is one of the most rarely encountered species of bats in the state. The majority of records are from Washington County, but scattered occurrences of this species are also known in Carbon, Utah, and Cache counties (Fig. 95). Dates of collections of the northerly records suggest that some may represent migrating individuals. The paucity of records prohibits the assessment of abundance or population trends. Because so little is known about habitat requirements and other aspects of the ecology of this species in Utah, threats to populations are poorly understood. In the vicinity of St. George this species has been captured in association with low-elevation riparian cottonwoods (Stock 1965). The lack of records since the 1950s from the Virgin River drainage correlates with the prevalent replacement of native riparian cottonwoods with dense stands of salt cedar (*Tamarix* sp.).

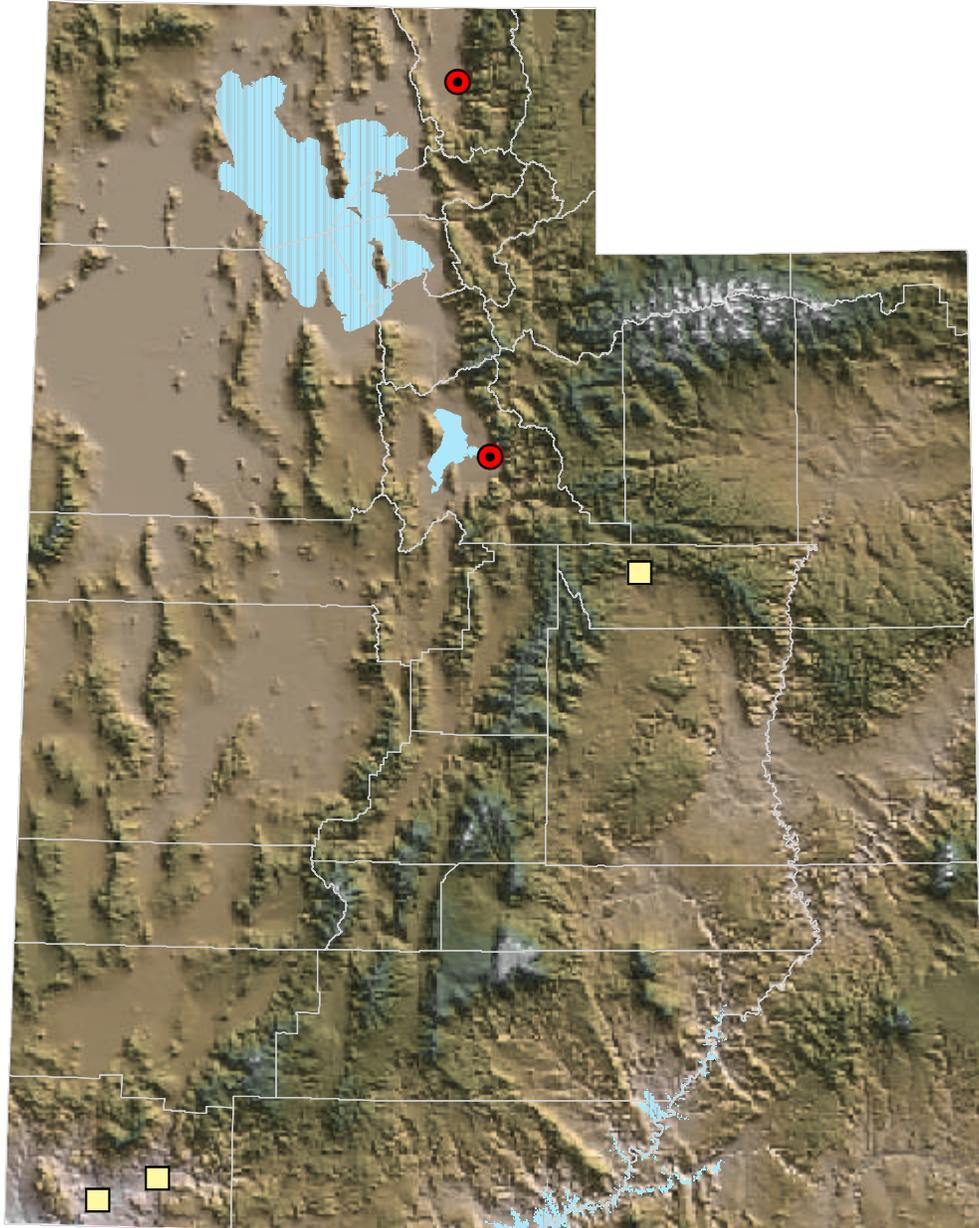


Figure 95. The distribution of records of the western red bat (*Lasiurus blossevillii*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Spotted Bat
Euderma maculatum

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Vespertilionid Bats (Vespertilionidae)

SUBSPECIES: No subspecies have been proposed.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is broadly distributed throughout eastern and southern Utah and has rarely been encountered elsewhere in the state (Fig. 96). Within the Utah range, the majority of records are from deep, narrow, rocky canyons, particularly those bounded by precipitous cliff faces. Crevices in cliff walls are the primary roosting sites (e.g., Poche 1981). Individuals forage over open sagebrush steppe, desert scrub, or montane meadow habitat (Easterla 1965, Poche 1981, Foster et al. 1996), sometimes considerable distances from roosting habitat (Poche 1981).

This species is generally thought to be rare (Fenton et al. 1987), and capture rates tend to be relatively low for this species. Abundance, however, may be independent of capture rate because this species tends to forage at heights above most mist net arrays, and the species does not aggregate at roost sites like many other species of bats. Based on echolocation calls, foraging spotted bats tend to be sparsely dispersed, but population sizes and trends are not known.

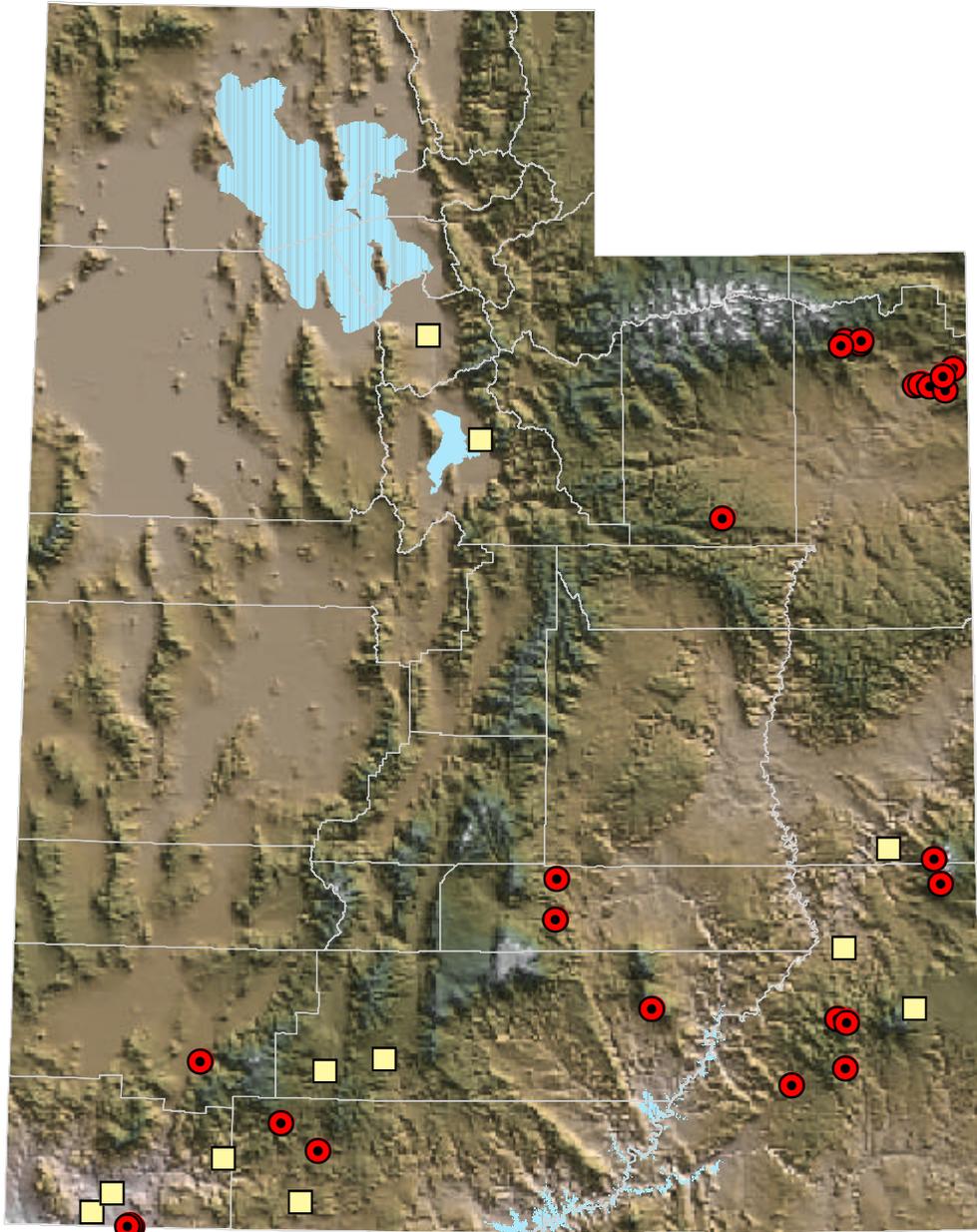


Figure 96. The distribution of records of the spotted bat (*Euderma maculatum*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Townsend's Big-eared Bat
Corynorhinus townsendii

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Vespertilionid Bats (Vespertilionidae)

SUBSPECIES: The subspecies that occurs in Utah is *Corynorhinus townsendii pallescens*.

OTHER NAMES: The name *Plecotus townsendii* was used for this species until recently. The name *Corynorhinus rafinesquii* has been used by some authors (e.g., Durrant 1952).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations occur statewide at middle and low elevations, generally below 9,000 ft., but are absent from flat desert habitats lacking appropriate roosting sites (Fig. 97). This species occurs in a wide variety of habitats including sagebrush steppe, pinyon-juniper, mountain shrub, and mixed conifer associations. The primary habitat component, however, is the availability of caves or mines for roost sites. Because required roost conditions vary seasonally and individuals typically do not move long distances between roost sites, highest population densities generally occur in areas with complexes of mines or caves offering diverse roost habitat conditions.

Populations are thought to be declining over the long-term. Several losses of maternity sites have been reported (Pierson et al. 1999) in association with disturbance at roost sites, roost vandalism, and mine closures. This species is particularly vulnerable to human disturbance to colonies concentrated at roost sites, which can be especially critical at maternity colonies and hibernacula. Disturbance can affect reproduction success and survival rates.

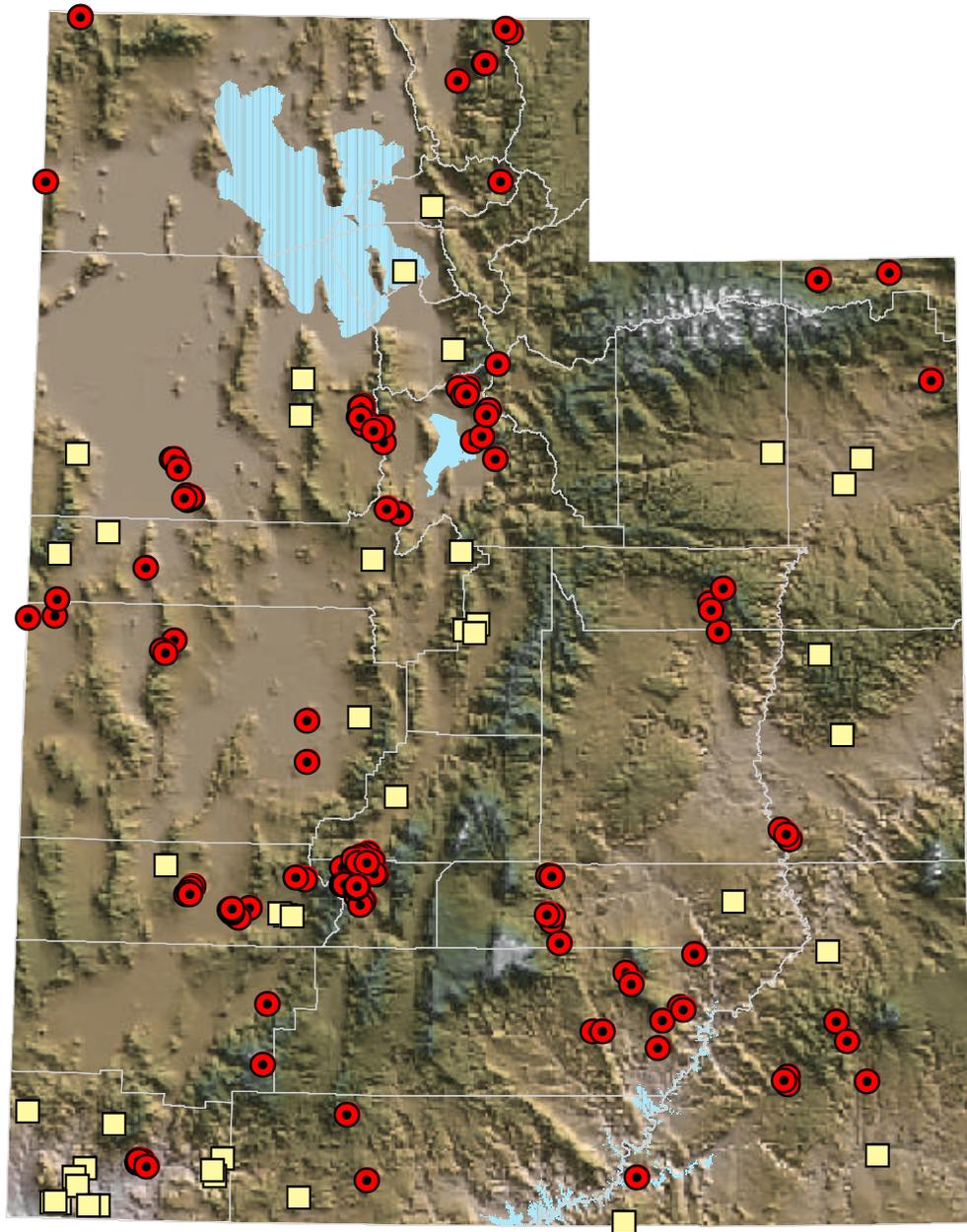


Figure 97. The distribution of records of Townsend's big-eared bat (*Corynorhinus townsendii*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Allen's Big-eared Bat
Idionycteris phyllotis

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Vespertilionid Bats (Vespertilionidae)

Subspecies: Some authors (e.g., Mollhagen and Bogan 1997) do not recognize subspecies. Tumlison (1993) proposed the subspecies *Idionycteris phyllotis hualapaiensis*, to which Utah populations would belong.

OTHER NAMES: A former taxonomic arrangement placed this species in the genus *Plecotus*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the southeastern quarter of the state and in the southwestern corner of Utah (Fig. 98). Within this area, this species is generally associated with riparian and pinyon-juniper habitat. Black (1970) described a collection site as "an artificial reservoir in a pinyon-juniper woodland" at an elevation of 6,000 ft. Armstrong (1974) captured this species near a small seep supporting emergent aquatic vegetation, such as horsetail (*Equisetum*), cattail (*Typha*), and bulrushes (*Scirpus*), as well as willows (*Salix* sp.). Surrounding upland vegetation consisted of pinyons, junipers, grasses, and brush. Similar habitat consisting of pinyon-juniper-desert scrub assemblages with riparian vegetation components were described by Poche (1975) and Foster et al. (1996).

This species is rarely encountered, and the size and trend of the population is unknown. It is one of the most poorly known of American bats, not discovered in the United States until 1955 (Cockrum 1956) and not discovered in Utah until 1969 (Black 1970). Threats to lowland riparian habitat—which include alteration from invasive plant species and degradation from agriculture, mining, and recreation—are pervasive in Utah. Degradation and loss of riparian habitat could adversely affect suitability of habitat for this species.

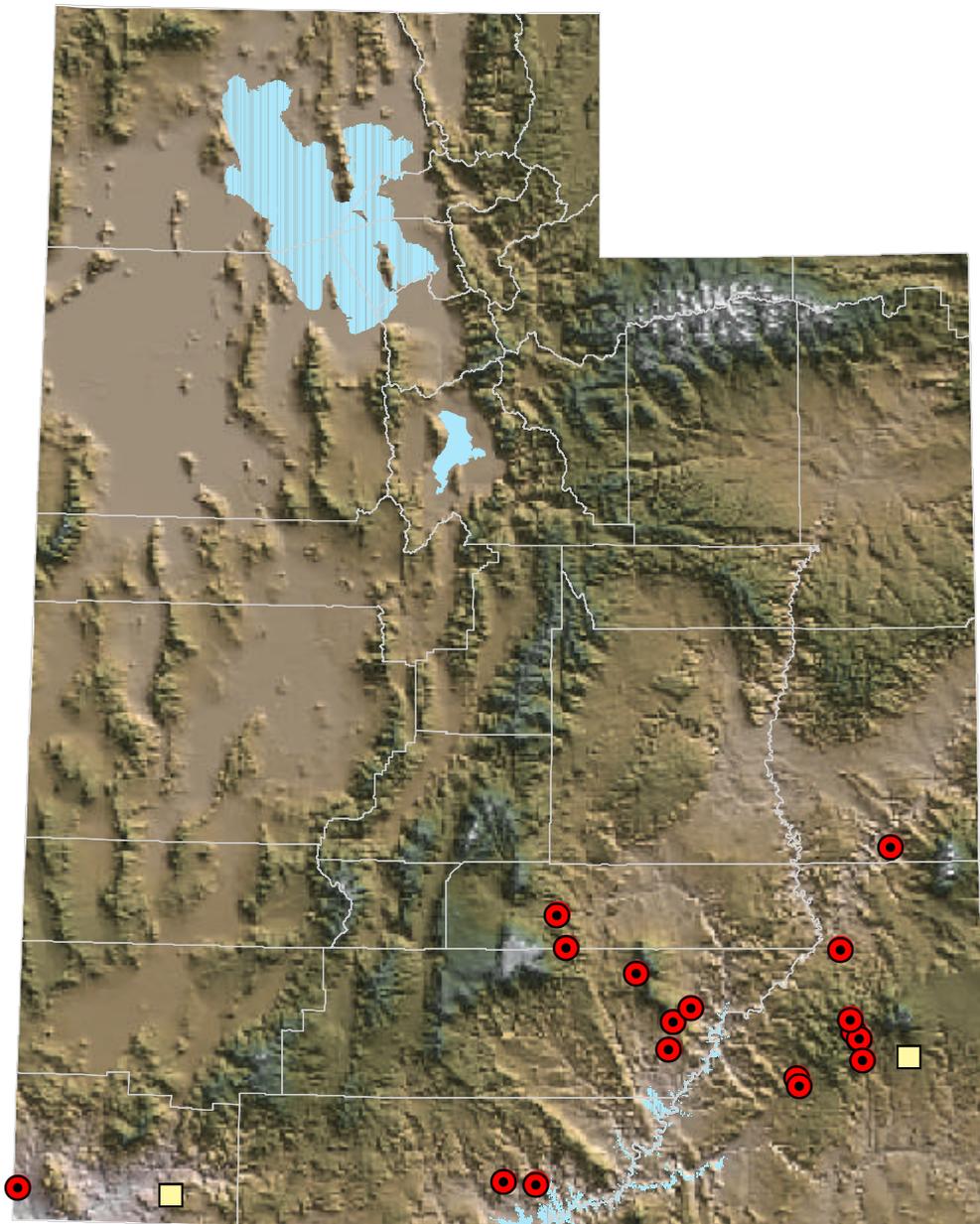


Figure 98. The distribution of records of Allen's big-eared bat (*Idionycteris phyllotis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Big Free-tailed Bat
Nyctinomops macrotis

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Free-tailed Bats (Molossidae)

SUBSPECIES: No subspecies are recognized.

OTHER NAMES: This species was formerly placed in the genus *Tadarida* and was known as *Tadarida molossa* (e.g., Durrant 1952, Shuster 1957) and as *Tadarida macrotis* (e.g., Hardy 1941, Hasenyager 1980, Hall 1981).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations occur in scattered locations across the southern half of the state, with the majority of records falling within the Colorado Plateau and Mojave Desert regions (Fig. 99). Within this area, this species is generally associated with low-elevation desert habitat, including desert scrub desert riparian assemblages with dominant vegetation including creosote bush (*Larrea tridentata*), blackbrush (*Coleogyne ramosissima*), sandsage (*Artemisia filifolia*), and snakeweed (*Gutierrezia* sp.), and salt cedar (*Tamarix* sp.). Foster et al. (1996), however, documented the species using montane habitat comprising meadows in spruce-aspen forest. Crevices and cavities in cliff faces are thought to be preferred roosts, yet no information concerning roost sites are available for Utah, and some records are from areas lacking such roosting habitat (Hasenyager 1980, Foster et al. 1996).

This species has been captured at low rates, and roost site aggregations have not been discovered. For these reasons, no estimates of population size are documented, and population trends are not known. Factors affecting population viability and habitat suitability are also poorly understood. Because this species may be associated with riparian habitat in some areas, the pervasive loss and alteration of low-elevation riparian zones in Utah is of importance.

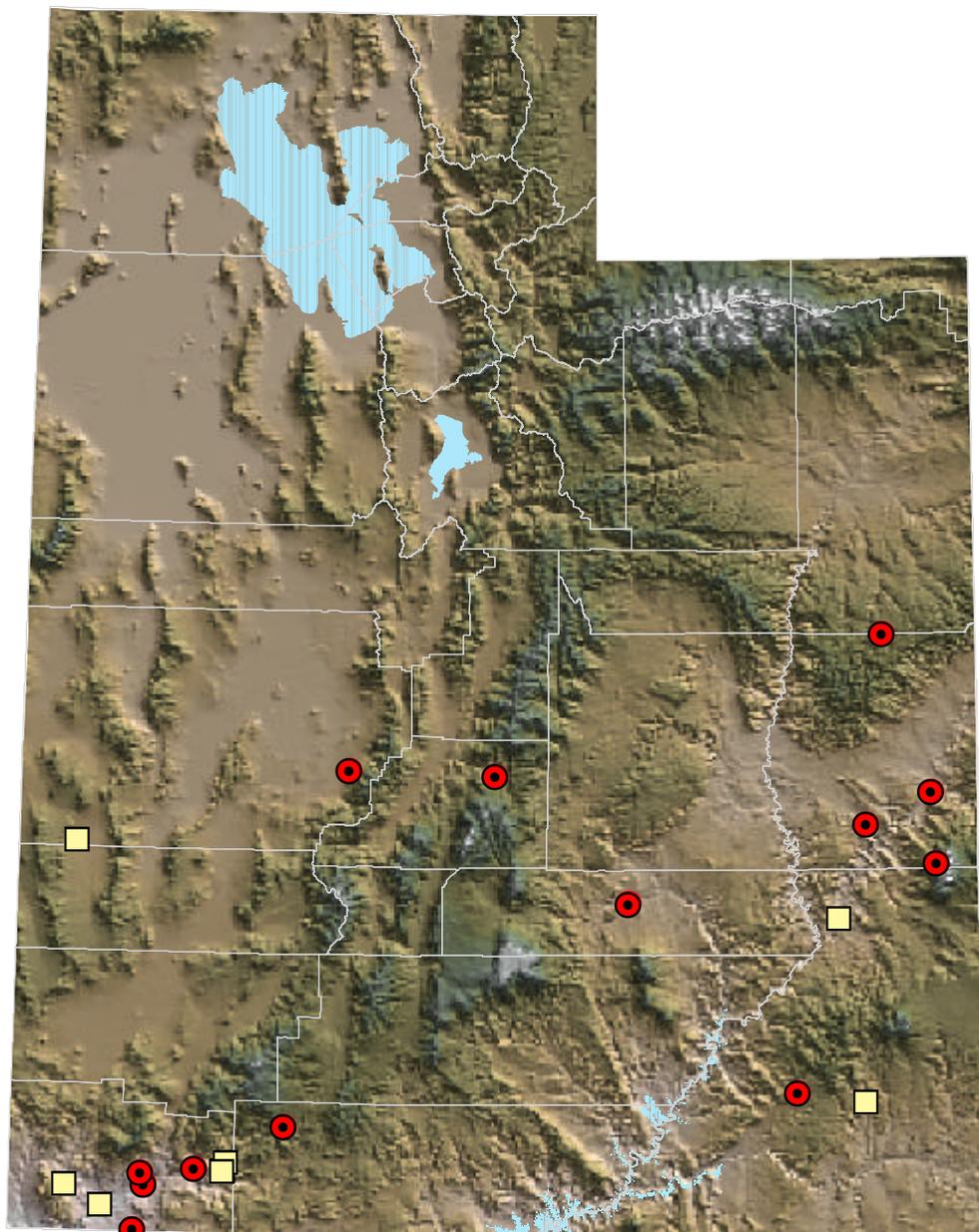


Figure 99. The distribution of records of the big free-tailed bat (*Nyctinomops macrotis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

American Pika
Ochotona princeps

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Pikas (Ochotonidae)

SUBSPECIES: Eight nominal subspecies have been reported to occur in Utah comprising the taxa *uinta*, *wasatchensis*, *moorei*, *barnesi*, *cinnamomea*, *utahensis*, *fuscipes*, and *lasalensis* (formerly called *saxatilis*). All are endemic to the state, and two are reported only from their type localities (Hall 1981). The subspecies *clamosa* may occur in northern Utah (Jensen 1965, Hall 1981, Smith and Weston 1990). Hafner and Sullivan (1995) examined molecular data from populations range-wide and found that genetically these populations formed only four groups, providing evidence that a revision of subspecies may be justifiable. Three of these four genetically distinct groups are represented in Utah: the northern Rock Mountains, the Sierra Nevada, and the southern Rocky Mountains genetic groups. Formal recognition of these groups as subspecies awaits further study.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations are discontinuously distributed through the mountains of the central high plateaus, the Wasatch Mountains, the Uinta Mountains, and the La Sal Mountains (Fig. 100). Within this range, this species typically inhabits talus or boulder-strewn slopes in high-elevation montane and alpine habitats. All localities presented by Durrant (1952) were 8,000 to 11,315 ft. in elevation, most locations being at 9,000 or 10,000 ft.

Because suitable habitat is insular, populations tend to be small and scattered. Population estimates and population trends are not known. A number of populations have not been recently documented and are of unknown status. Livestock use, recreational use, and proximity of habitat to roads have been identified as potential threats to population viability. Recent analysis of the status of populations in Nevada suggests that the combined effects of habitat degradation, small population size, and climate change may be responsible for the loss of pika populations in that state (Beever et al. 2003).

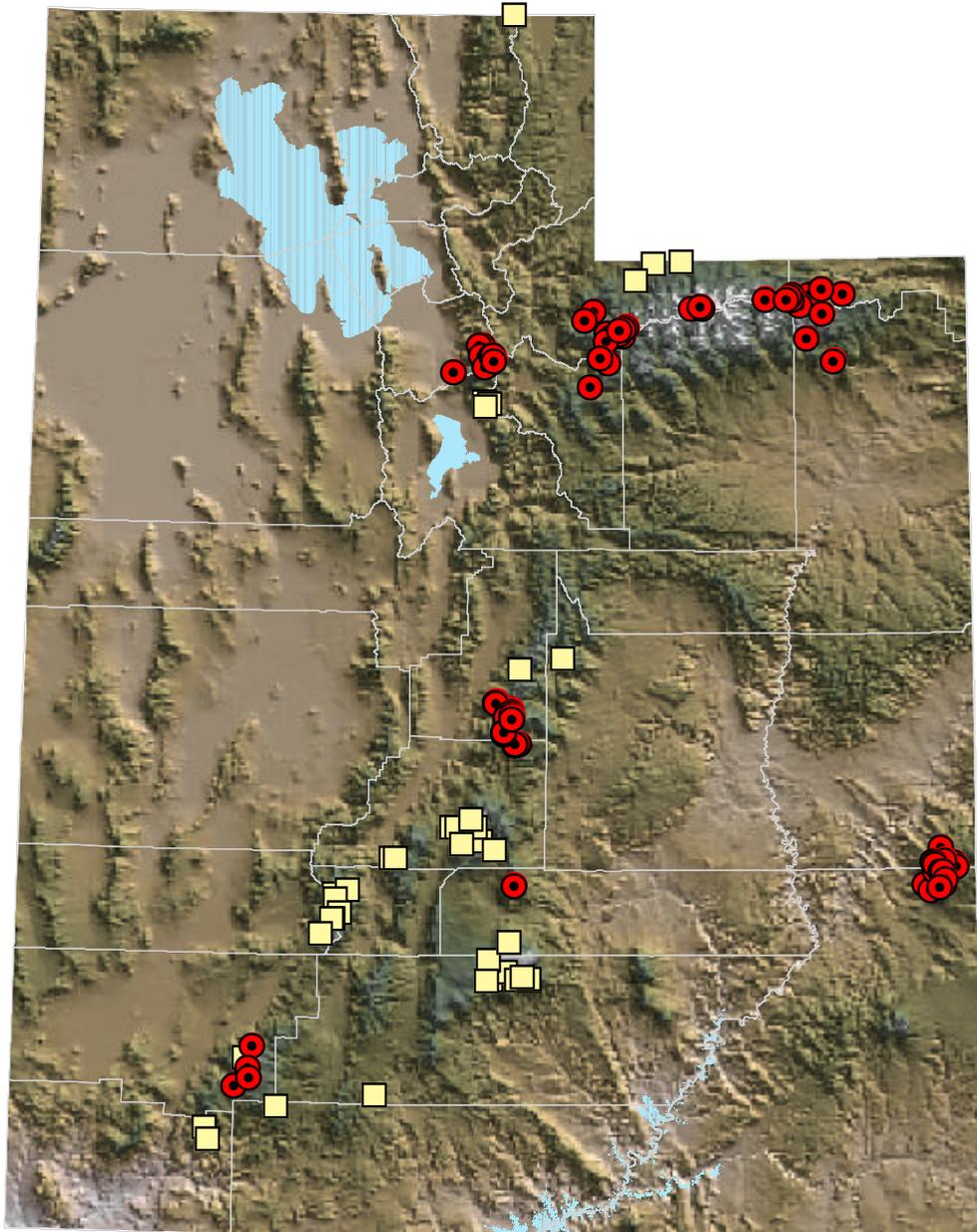


Figure 100. The distribution of records of the American pika (*Ochotona princeps*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Pygmy Rabbit
Brachylagus idahoensis

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Rabbits and Hares (Leporidae)

SUBSPECIES: No subspecies have been recognized.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations are distributed in western Utah, primarily in areas within the Bonneville Basin (Fig. 101). Populations occur in areas having dense, tall stands of sagebrush (*Artemisia* spp.), especially big sagebrush (*Artemisia tridentata*). Local distribution is also correlated with soil characteristics that are conducive to burrowing. Populations generally occur in areas having sandy soils or in association with deep alluvial deposits.

Few data are available to indicate the size or trend of populations. Population density varies greatly spatially, evidently in response to habitat quality, but temporal variability is poorly understood (Green and Flinders 1980). Pygmy rabbits have not been detected at some of the sites recorded by Janson (1946) (UDWR unpublished data), which suggests a decline in the area of occupancy from historical levels. Apparent declines are thought to be related to the decline of range conditions, specifically the degradation and loss of sagebrush steppe habitat. Habitat loss has been the result of altered fire regimes, development, and agricultural conversion. Livestock overuse and weed invasions also number among the important factors contributing to the degradation of sagebrush habitat.

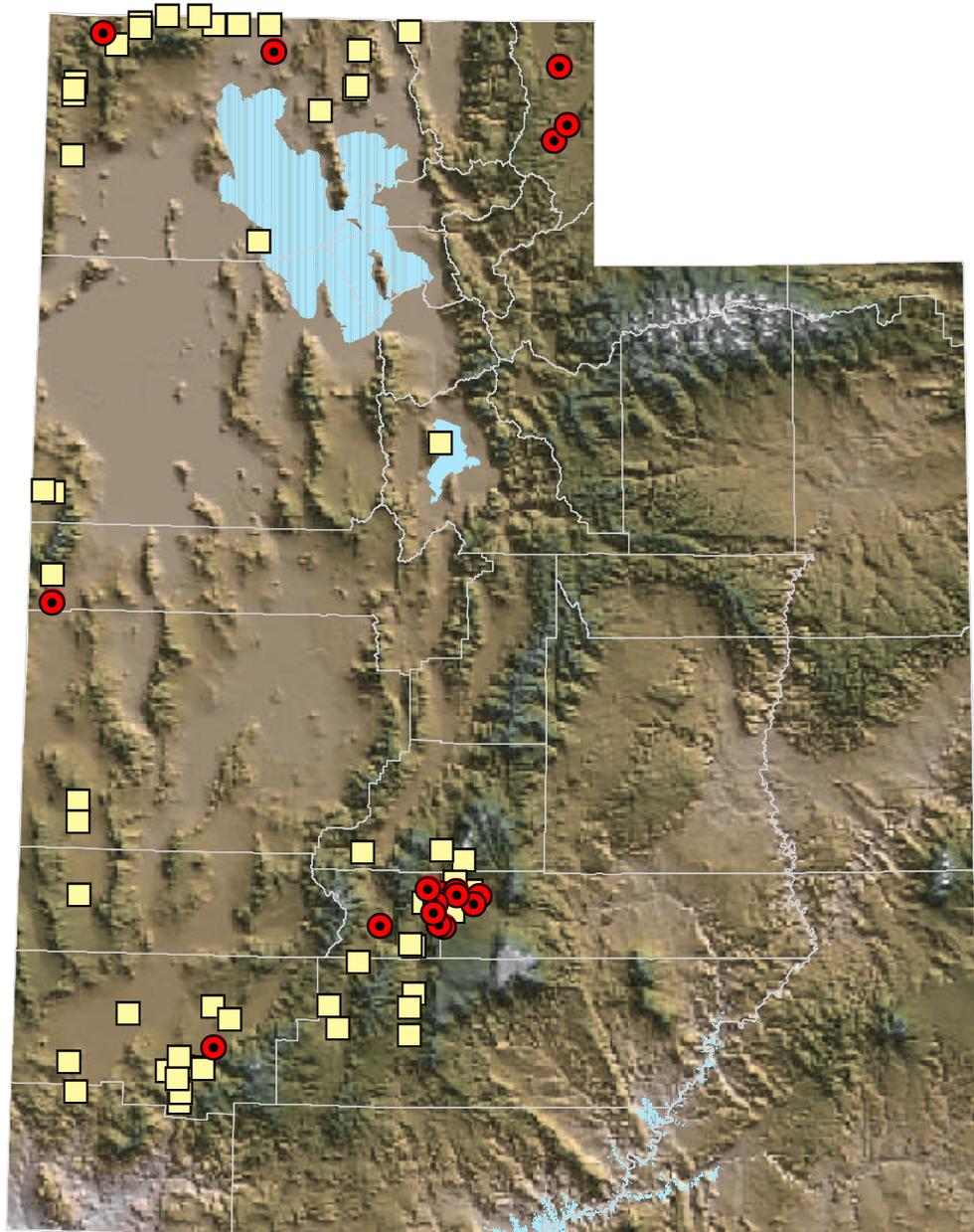


Figure 101. The distribution of records of the pygmy rabbit (*Brachylagus idahoensis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Yellow-pine Chipmunk
Tamias amoenus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: The subspecies that occurs in Utah is *Tamias amoenus amoenus*.

OTHER NAMES: Some authorities have placed this species in the genus *Eutamias* (e.g., Durrant 1952).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs at higher elevations in the Raft River Mountains, Box Elder County (Fig. 102) (Durrant 1952). Pritchett (1990) noted the report of the species occurring in Summit County, but no supporting evidence has been identified, and the record is likely to be in error. In the Raft River Mountains, this species is found at elevations above 6,500 ft. (Durrant 1952). Habitat associations have not been documented for populations in this mountain range. Elsewhere, this chipmunk is usually associated with mountain shrub habitat dominated by such species as snowberry (*Symphoricarpos* sp.) and mountain mahogany (*Cercocarpus* sp.) or with mixed conifer habitat (Sutton 1992).

No information is available to indicate the current status of populations, and no estimates of population size or habitat condition have been documented. Loss of suitable habitat is the greatest threat to the persistence of populations. A large portion of the Raft River Mountains is affected by livestock grazing and other agricultural uses, and habitat may be degraded by these activities. Forest management practices, such as logging and burning, also have the potential to affect significant portions of occupied habitat in this relatively small mountain range.

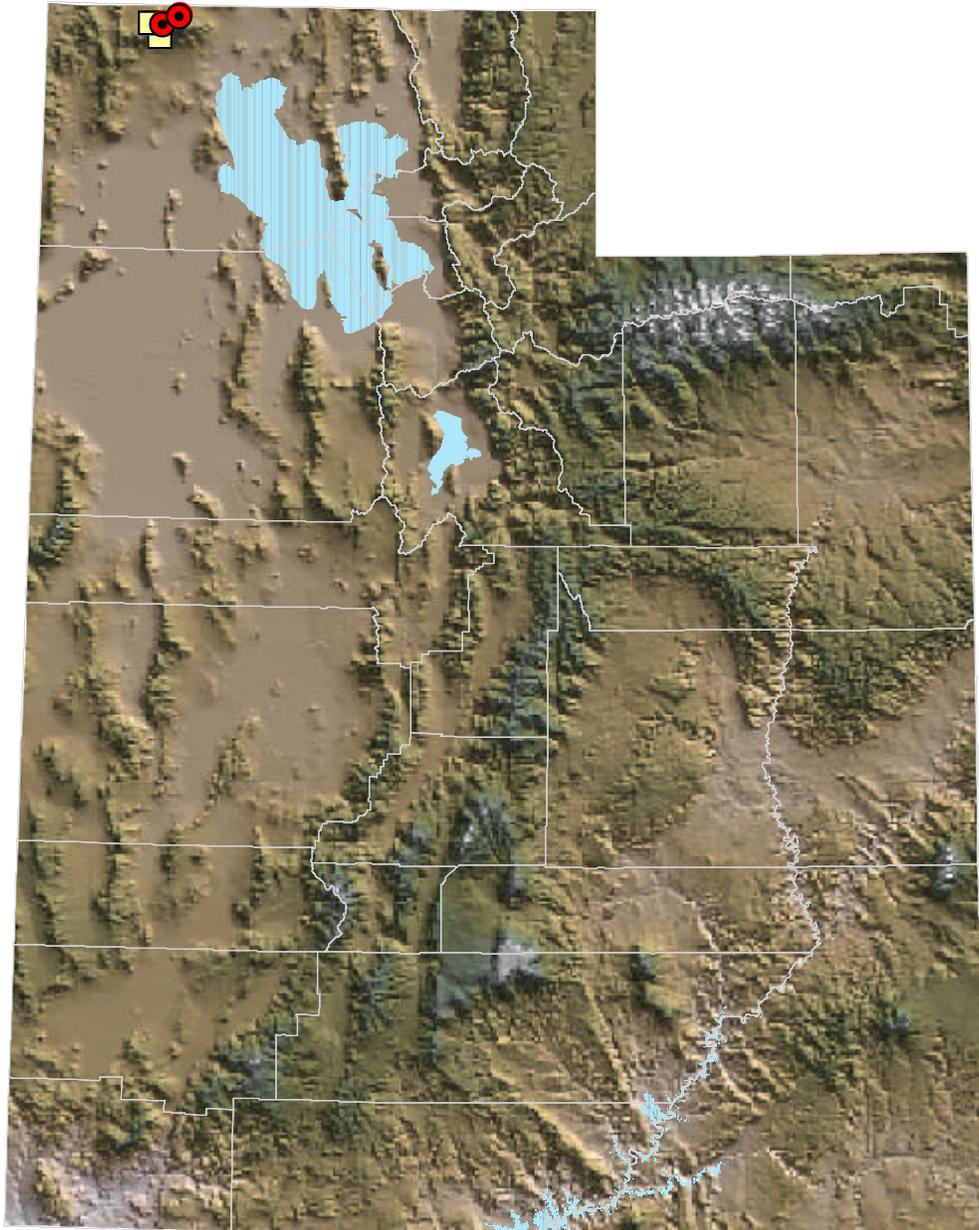


Figure 102. The distribution of records of the yellow-pine chipmunk (*Tamias amoenus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Belding's Ground Squirrel
Spermophilus beldingi

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: The subspecies that occurs in Utah is *Spermophilus beldingi creber*.

OTHER NAMES: This species was formerly called *Citellus beldingi* (e.g., Durrant 1952, Durrant et al. 1955).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in northwestern Box Elder County (Fig. 103) (Durrant et al. 1955). Reported localities are generally along the lower slopes and foothills associated with the Raft River and Grouse Creek mountains. Occupied habitats have not been documented, but elsewhere populations occur in a variety of habitats including sagebrush steppe and agricultural associations (Jenkins and Eshelman 1984).

No recent documentation of populations is available, and the current abundance and population trend are not known. Because this species is associated with sagebrush steppe habitat, the decline of range conditions in this region is a potential threat to population viability. Persecution of the species as a crop predator may also be of concern locally.

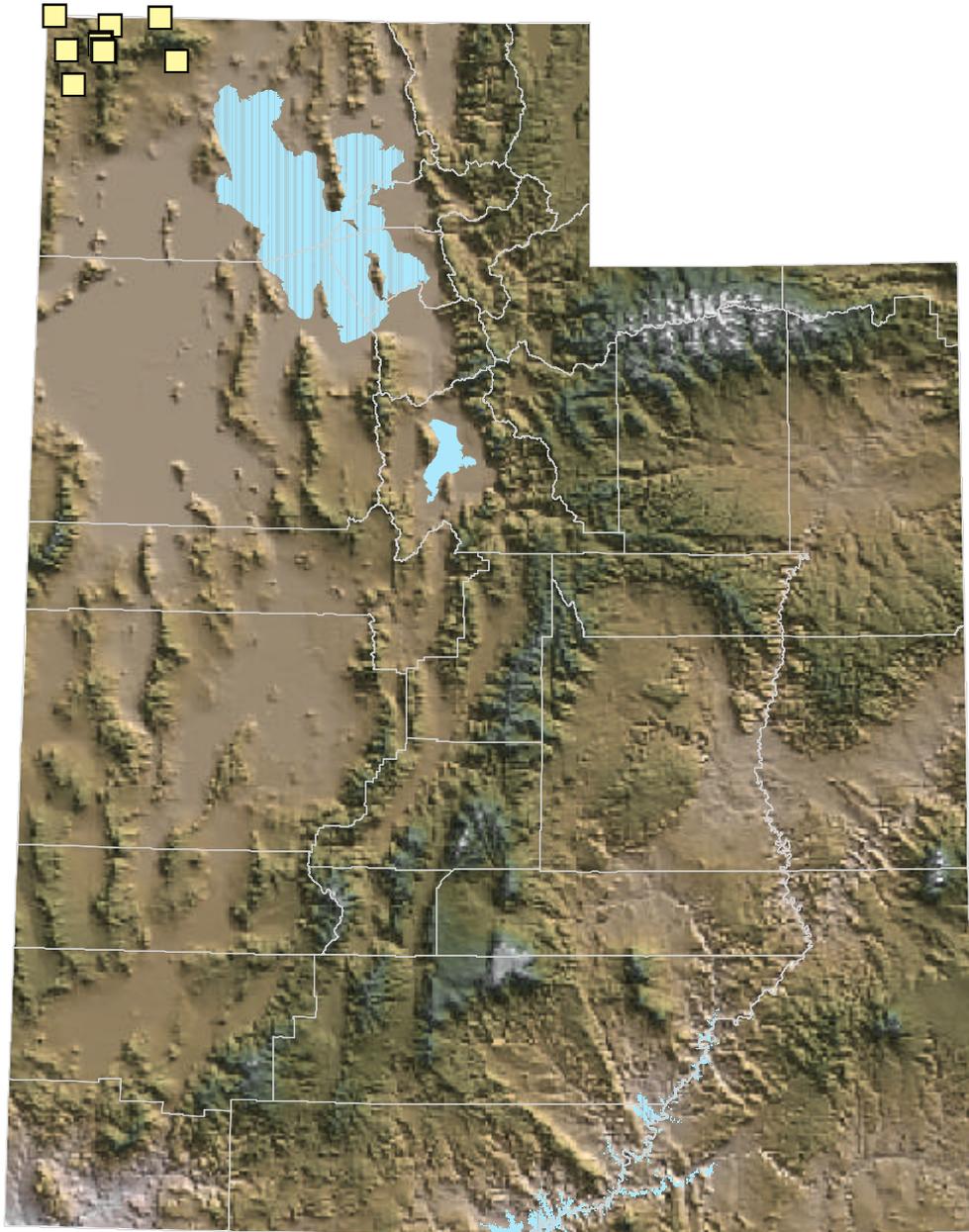


Figure 103. The distribution of records of Belding's ground squirrel (*Spermophilus beldingi*).

Thirteen-lined Ground Squirrel
Spermophilus tridecemlineatus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: The subspecies of this species that occurs in Utah is *Spermophilus tridecemlineatus parvus*.

OTHER NAMES: Formerly this species was known as *Citellus tridecemlineatus* (e.g., Durrant 1952).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations have occurred in scattered localities throughout the Uinta Basin (Fig. 104). Habitats that are occupied include shrub and grass associations, including sagebrush-, shadscale-, and greasewood-dominated habitat (Hansen 1954).

Estimates of population size and recent assessment of the status of most populations are not known. Hansen (1954) and Durrant (1952) suggested that populations were declining during the late 1940s and early 1950s. The paucity of recent records from the western part of the Uinta Basin suggests that the extent of occupied habitat may have contracted dramatically during the last half century. The reason for possible declines has not been investigated.

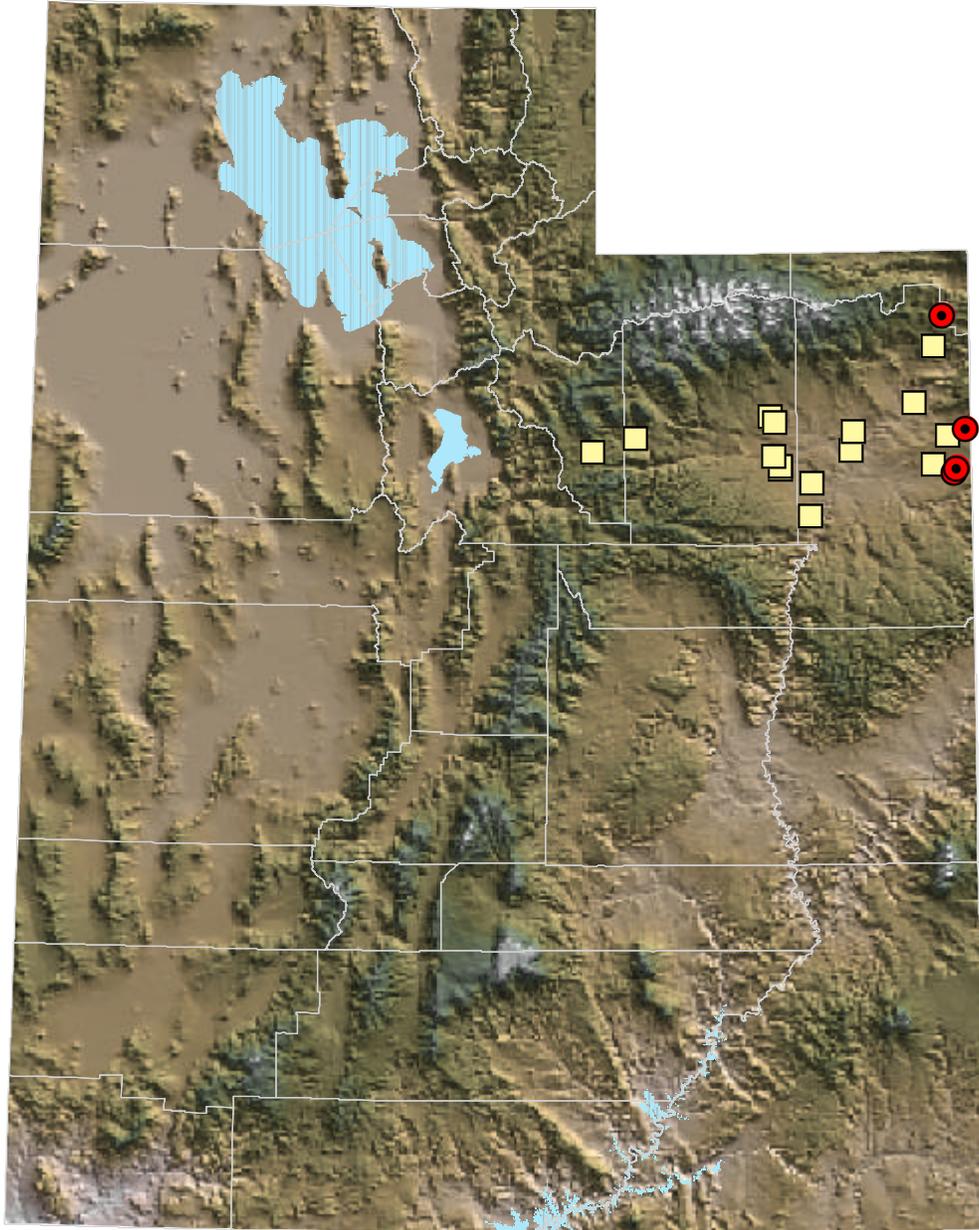


Figure 104. The distribution of records of the thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Spotted Ground Squirrel
Spermophilus spilosoma

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: The subspecies that occurs in Utah is *Spermophilus spilosoma cryptospilotus* (e.g., Durrant 1952, Hall 1981). The subspecies *S. spilosoma pratensis* may also occur in the state (Streubel and Fitzgerald 1978).

OTHER NAMES: This species was formerly known as *Citellus spilosoma* (e.g., Durrant 1952).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations have been reported to occur in southern and eastern San Juan County (Fig. 105). Hansen (1954) wrote: "In San Juan County, Utah, spotted ground squirrels were found living in areas characterized by dry-farm grain fields. They appear to be most common on the rounded crests of small rolling hills that occur within the dry-farms." No recent records are available, however, to indicate the continued presence of this species in the state.

This species was apparently historically rare in Utah. Durrant (1952) examined only one specimen from this state. Hansen (1954) considered this species to be declining and "almost extinct in Utah." The reasons for this decline is not well documented. Hansen (1954) considered this species to be threatened in Utah by habitat loss and alteration resulting from overgrazing and other agricultural uses.

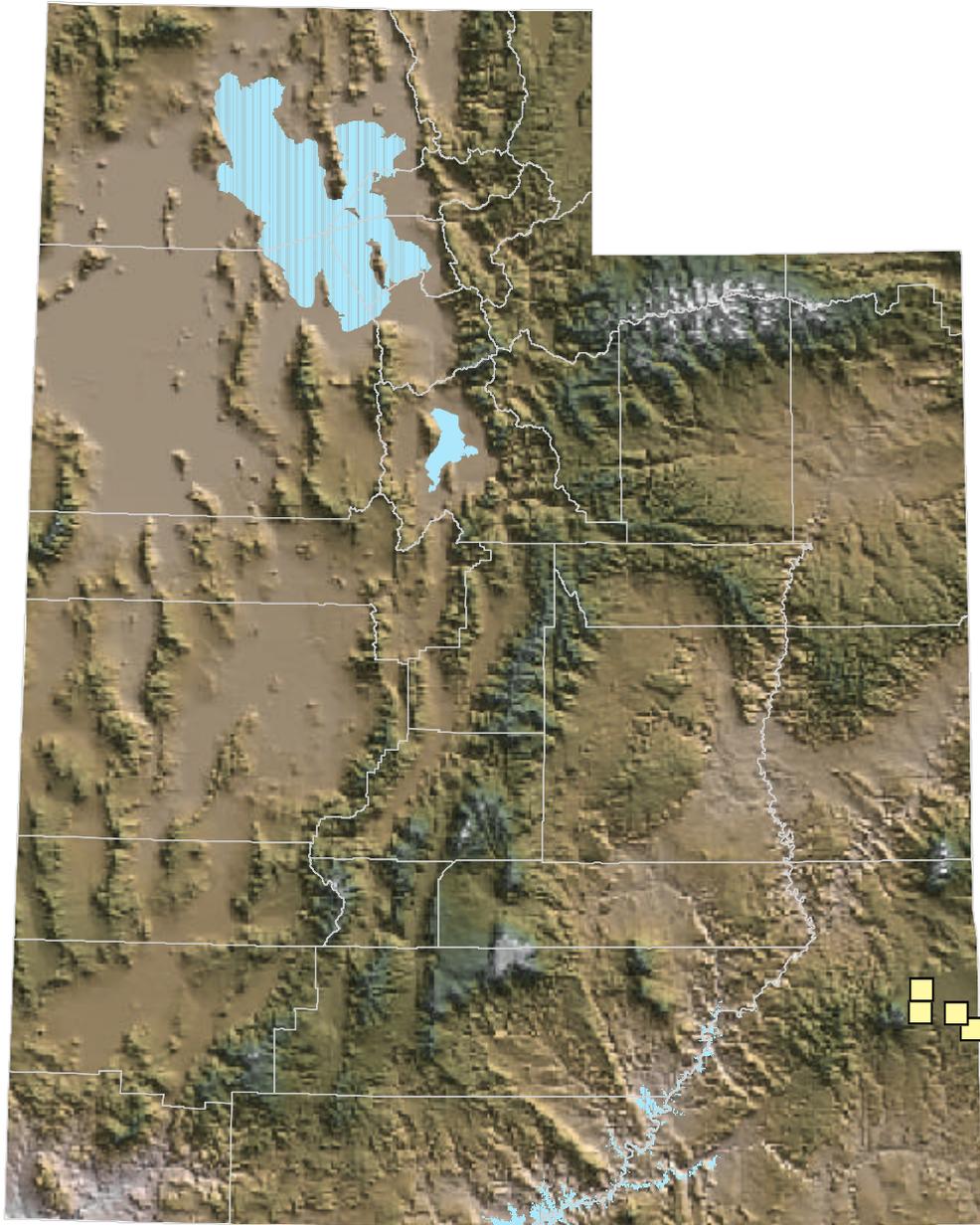


Figure 105. The distribution of records of the spotted ground squirrel (*Spermophilus spilosoma*).

Wyoming Ground Squirrel
Spermophilus elegans

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: The subspecies that occurs in Utah is *Spermophilus elegans elegans*.

OTHER NAMES: The Wyoming ground squirrel was formerly considered to be a subspecies of Richardson's ground squirrel, at that time known as *Citellus richardsoni* (Durrant 1952, Hansen 1953, Jensen 1965, Durrant et al. 1955).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in Rich, Summit, and Daggett counties in the northeastern part of the state (Fig. 106). Hansen (1953) described the habitats where the Utah specimens were collected: "These animals from Rich and Summit counties live in greasewood and sagebrush areas, in open areas along roadsides, and along the margins of irrigated farmland and meadows. It is noteworthy that, when Richardson ground squirrels [i.e., Wyoming ground squirrels, *Spermophilus elegans*] and Uinta ground squirrels (*Citellus armatus* [= *Spermophilus armatus*]) occurred together in the same general area, the Uinta ground squirrels occupied the wetter, more grassy habitats, while the Richardson ground squirrels occupied the drier and better drained soils, which were generally characterized by greasewood and sagebrush."

Recent records are not available for this species, and the current size and status of populations is not known. Threats to population viability are not known but may include degradation of sagebrush steppe and other shrubland habitat.

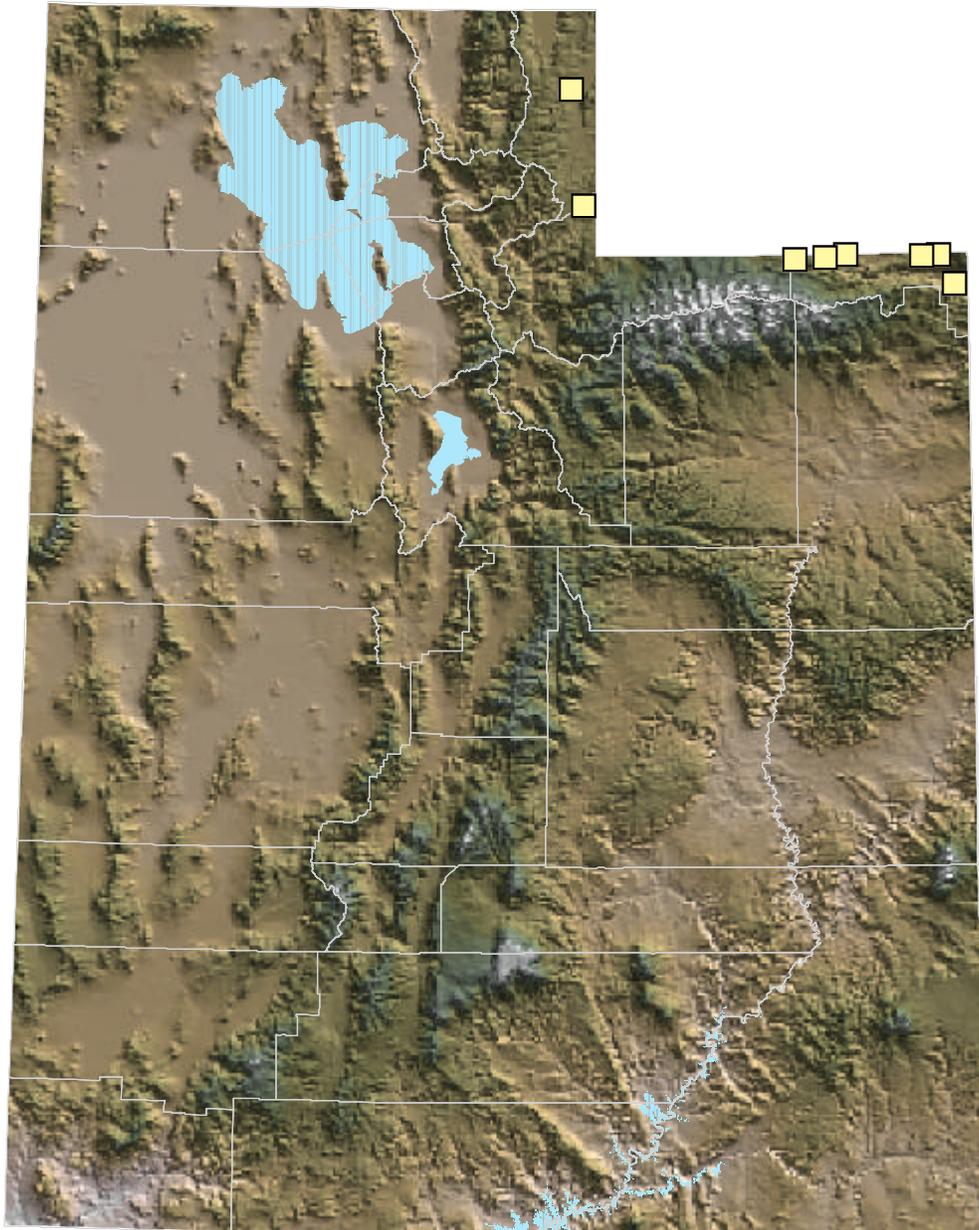


Figure 106. The distribution of records of the Wyoming ground squirrel (*Spermophilus elegans*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Utah Prairie-dog
Cynomys parvidens

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: No subspecies have been proposed.

CONSERVATION STATUS DESIGNATIONS

The Utah prairie-dog was classified by USFWS as an endangered species under the federal Endangered Species Act during 1973 (38 Federal Register 14678). It was later downlisted to threatened status during 1984 (49 Federal Register 22330-22334). Conservation efforts are currently guided by a conservation strategy (Utah Prairie Dog Recovery Implementation Team 1997). This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species is endemic to southwestern Utah, occurring in the southern Bonneville Basin and the high-elevation plateaus of central Utah (Fig. 107). Collier (1975) found that several habitat factors were important for this species: elevation below 9,000 ft, the availability of water in addition to precipitation, heterogeneity of plant community, less than 10% of the vegetative cover composed of "tall" (12 in. or 31 cm) vegetation, and non-alkaline soils. Crocker-Bedford and Spillett (1981) stated that historically "[p]rime habitat would have been below 2,200 m in elevation and would have had much cool season palatable forage.... [M]ost Utah prairie dogs now inhabit either densely populated colonies which have alfalfa, or sparsely populated colonies on high plateaus. Permanent Utah prairie dog colonies always are associated with areas that provide moist vegetation throughout the summer.... The nutritious, succulent plants found in such areas are crucial for Utah prairie dogs: colonies without such vegetation are decimated by drought, and higher moisture content in the vegetation allows greater population density"

Populations have declined dramatically from historical levels (e.g., Collier and Spillett 1972). The total number of Utah prairie-dogs has fluctuated between 3,500 and 6,000 adults since 1991 (e.g., McDonald 1996, Bonzo and Day 2002). Habitat loss arising from development and agricultural uses is the primary threat to populations. Intentional control efforts, including poisoning and shooting, have also been of importance in some areas. Sylvatic plague is an introduced disease that is, in part, responsible for tremendous fluctuations in population size.

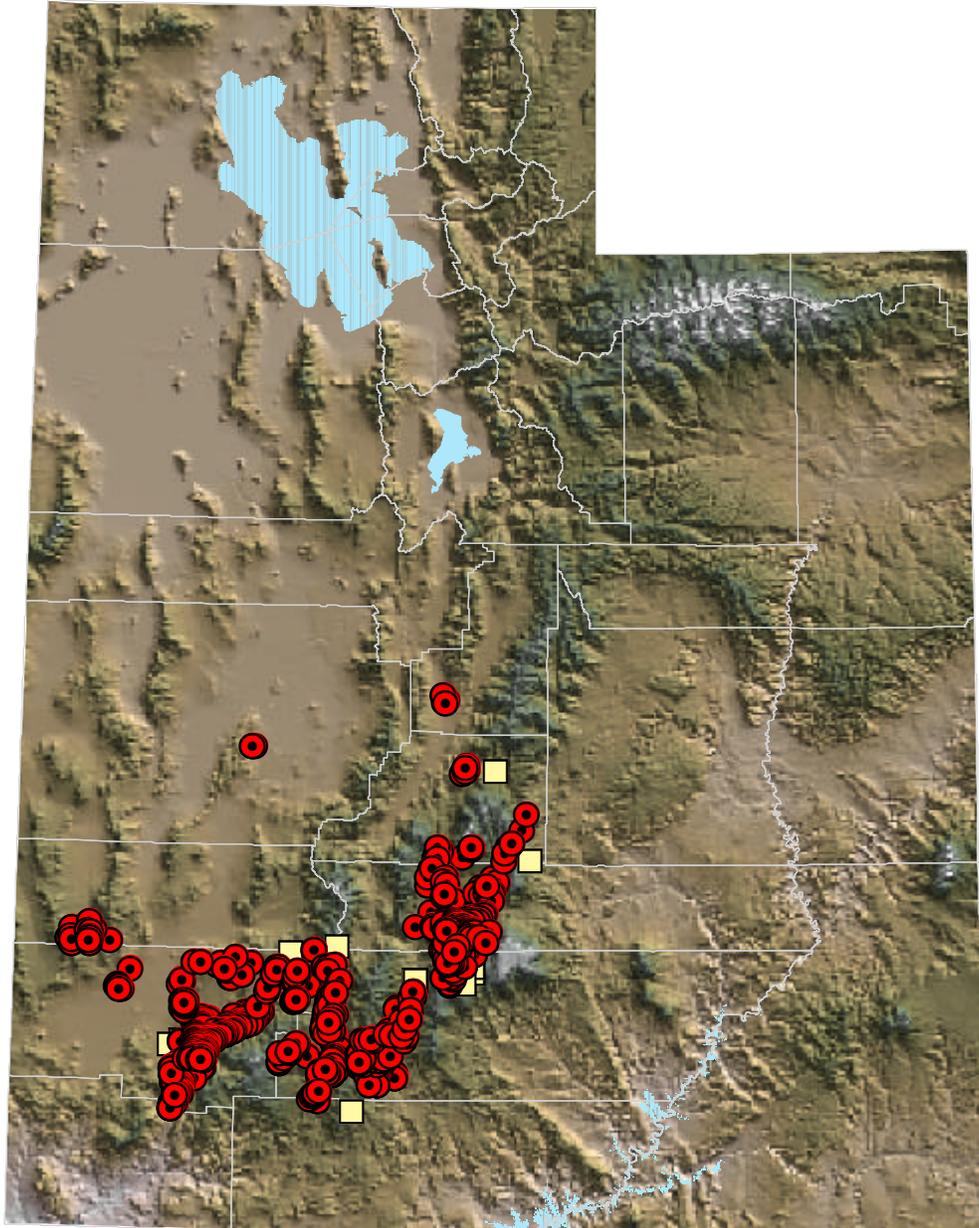


Figure 107. The distribution of records of the Utah prairie-dog (*Cynomys parvidens*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Gunnison's Prairie-dog
Cynomys gunnisoni

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: Utah populations are of the subspecies *Cynomys gunnisoni zuniensis*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations occur to the south and east of the Colorado River, in parts of both San Juan and Grand counties (Fig. 108) (Durrant 1952). This species occurs in sparsely vegetated, arid flats, particularly in areas dominated by short grasses. Specific information regarding the habitat requirements in Utah has not been published.

Recent survey efforts (UDWR unpublished data) suggest a dramatic decline in the extent of occupied habitat from historical levels. Of concern are the effects of sylvatic plague, an introduced disease, on populations. Prairie-dog control measures, habitat degradation/loss resulting from agriculture and livestock overuse, and population fragmentation may limit the ability of colonies to recover from outbreaks of plague and decrease the likelihood that areas will be recolonized following local extirpations.

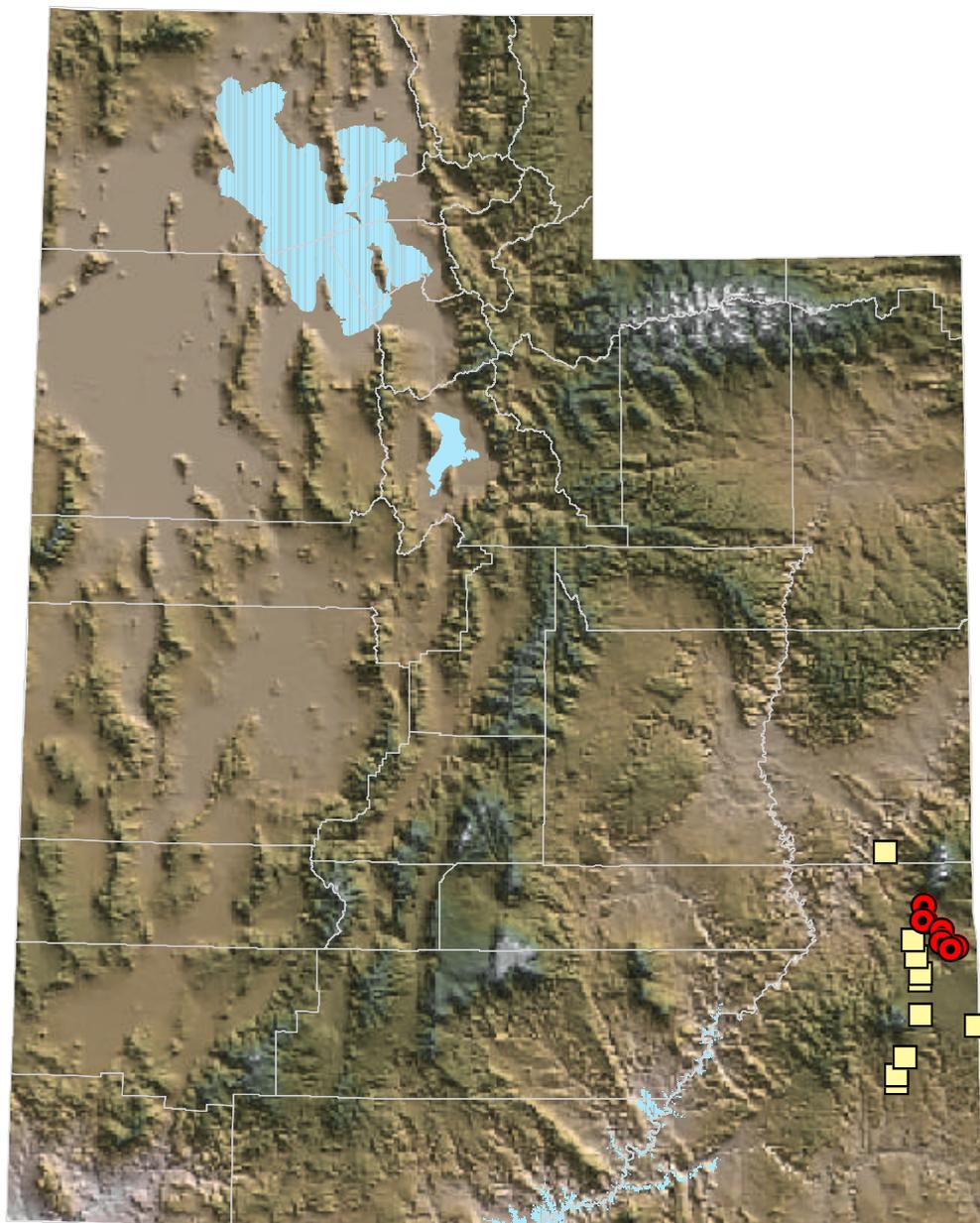


Figure 108. The distribution of records of Gunnison's prairie-dog (*Cynomys gunnisoni*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

White-tailed Prairie-dog
Cynomys leucurus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

Subspecies: No subspecies are recognized.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Populations have been documented in scattered localities in northeastern Utah, including Rich County, the Uinta Basin, and the northern Colorado Plateau in areas north and west of the Colorado River (Fig. 109). Within this area, the species occurs in arid flats that are sparsely vegetated with low shrubs and grasses.

Recent efforts have indicated that the extent of occupied habitat has declined from historical levels, perhaps dramatically (UDWR unpublished data). Sylvatic plague, an introduced disease, causes dramatic changes in mortality rates within colonies, which results in rapid population declines and local extirpations. Factors negatively affecting recolonization and repopulation rates include habitat fragmentation/degradation and prairie-dog control measures.

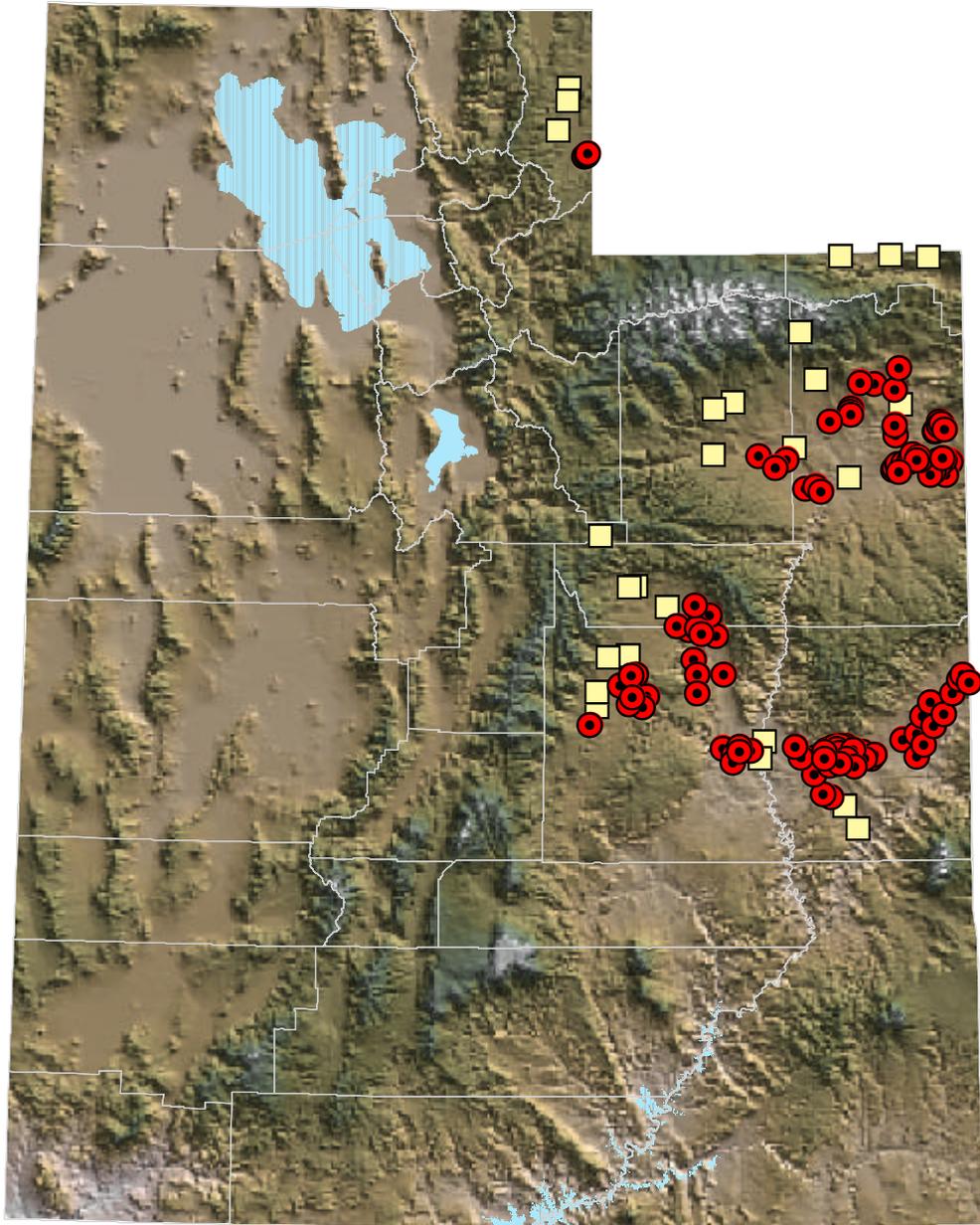


Figure 109. The distribution of records of the white-tailed prairie-dog (*Cynomys leucurus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Abert's Squirrel
Sciurus aberti

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: The subspecies occurring in Utah is *Sciurus aberti aberti*. The Utah populations had been described as a disjunct subspecies, *S. aberti navajo* (Durrant and Kelson 1947), but this taxon is now considered to be a synonym of *S. aberti aberti* (Hoffmeister and Diersing 1978, Lamb et al. 1997).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in scattered locations in the Abajo and La Sal mountains of San Juan and Grand counties (Fig. 110). Pederson et al. (1976) estimated the occupied area in the Abajo Mountains to comprise about 100,000 acres. Boschen (1986) surveyed 38,760 acres inhabited by this species in San Juan County. Populations occur exclusively in mature stands of ponderosa pine (Durrant 1952). Pederson et al. (1976) reported: "Ponderosa pine is found on the Blue Mountains and Elk Ridge at an elevation of 7,500 feet (2,275 m) to 9,500 feet (2,881.6 m). This tree species prevails on the bench lands surrounding the higher rocky slopes. Aspen (*Populus tremuloides*), spruce (*Picea* spp.), and the fir (*Abies* spp.) complex are found in the north slopes of this area."

Current population sizes and trends are not known. Populations may be threatened by forest management practices. Pederson et al. (1987) found that clear-cutting negatively affected the population of this species on study areas in San Juan County. They recommended: "To minimize long-term effects on squirrels timber should be harvested in small, selective blocks (<20 acres) rather than in large-scale areas (>50 acres) by clear-cut methods commonly employed by management agencies."

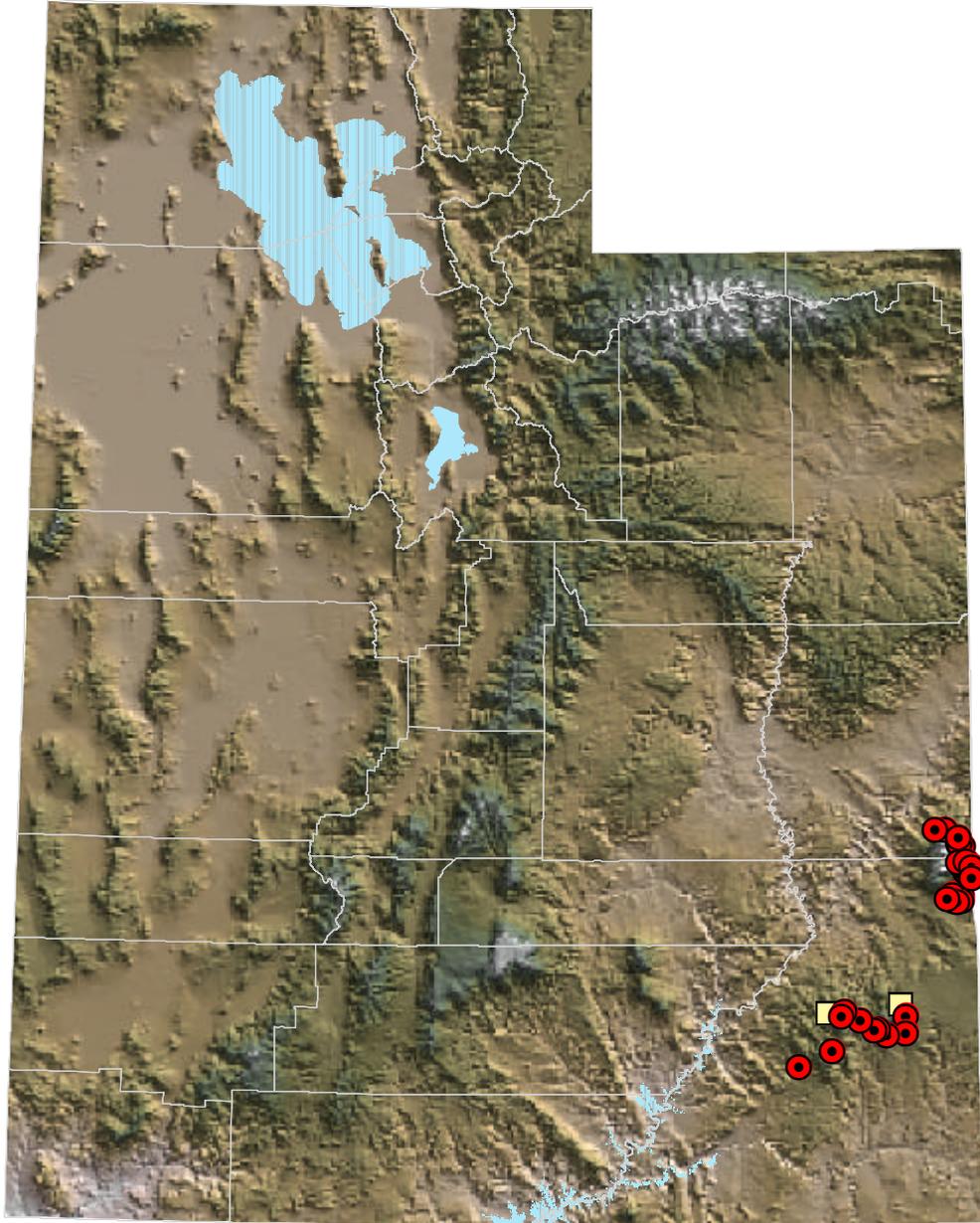


Figure 110. The distribution of records of Abert's squirrel (*Sciurus aberti*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Northern Flying Squirrel
Glaucomys sabrinus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Squirrels, Chipmunks, and Prairie-dogs (Sciuridae)

SUBSPECIES: The subspecies *Glaucomys sabrinus lucifugus* and *G. sabrinus murinauralis* are both endemic to Utah (Wells-Gosling and Heaney 1984).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in scattered localities in the mountains and high plateaus of central Utah, the Wasatch and Uinta mountains of northern Utah, as well as the Book Cliffs of eastern Utah (Fig. 111). Durrant (1952) noted that there had been a report of this species in Emery County (Howell 1918) and possibly the Abajo Mountains. Elevational limits of populations in the state appear to be about 6,500 ft. to about 11,000 ft. (Durrant 1952, Musser 1961). Within the occupied area, flying squirrels are found primarily in montane forests, particularly spruce-fir associations, but also mixed conifer and mountain riparian habitats (Hallows 1982, Musser 1961).

In part because this is a nocturnal species that is difficult to detect, population sizes and trends have not been evaluated, and recent records of occurrence are lacking for many populations. Durrant (1952) commented: "Flying squirrels ... are fairly common in the Wasatch Mountains" Hallows (1982) stated: "This rare species has been reported ... three times in the [Bryce Canyon National] Park." Threats to population viability have not been reported. Because populations are dependent on montane forest habitat, forest management practices could affect habitat suitability for this species. Fire, logging operations, and development have the potential to affect viability.

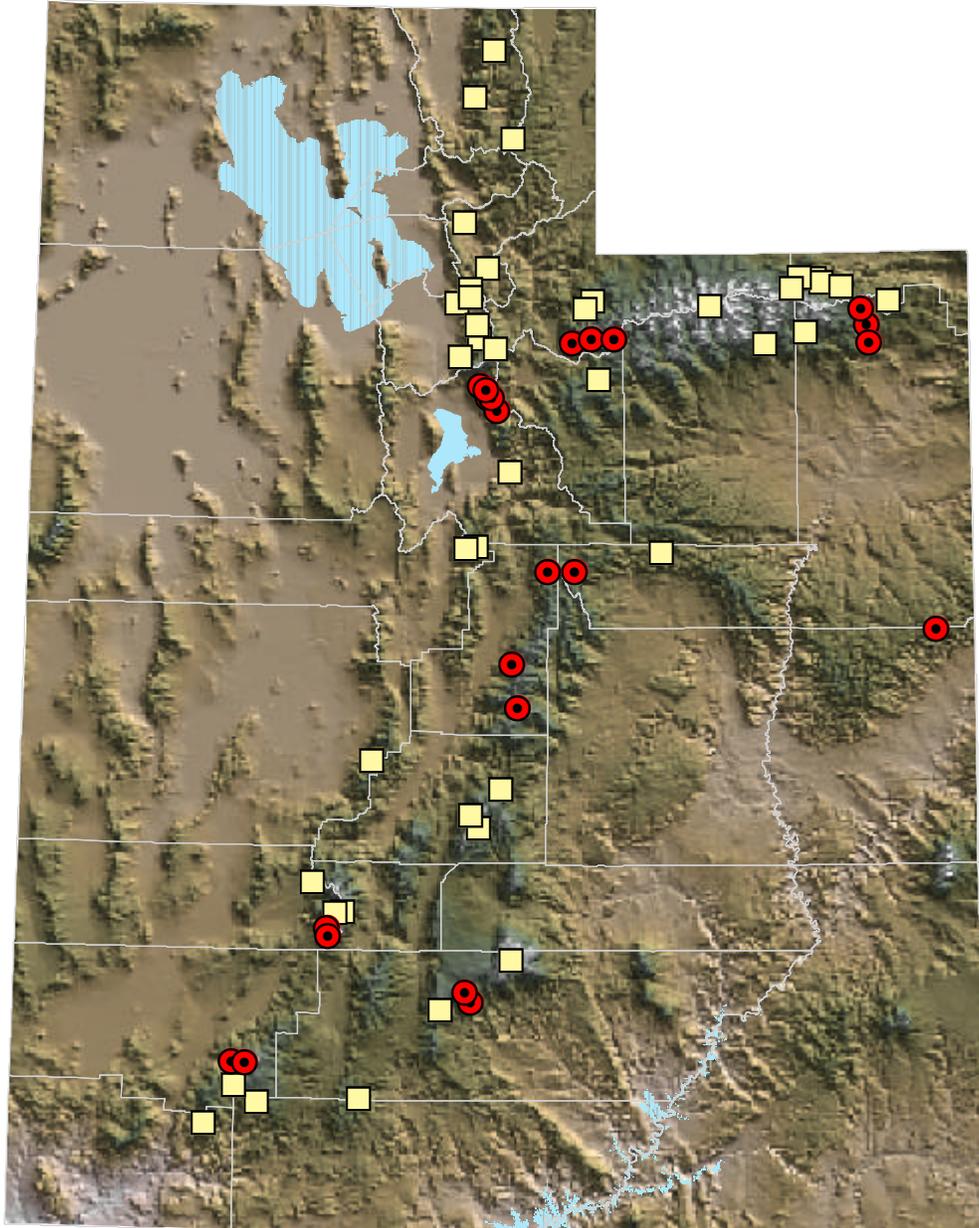


Figure 111. The distribution of records of the northern flying squirrel (*Glaucomys sabrinus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Idaho Pocket Gopher
Thomomys idahoensis

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Pocket Gophers (Geomyidae)

SUBSPECIES: The subspecies that occurs in Utah is *Thomomys idahoensis pygmaeus*.

OTHER NAMES: The taxon *pygmaeus* was formerly thought to be a subspecies of the northern pocket gopher (*Thomomys talpoides*) (e.g., Durrant 1952, Hall and Kelson 1959, Hall 1981). Thaeler (1972) associated *pygmaeus* with the species *T. idahoensis*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in Rich County and in Daggett County (Fig. 112) (Thaeler 1972). Jensen (1965) stated: "These small, pale gophers are usually found in shallow, rocky soils within the study area [Rich County, Utah]. The specimen from near Little Creek Reservoir on the west side of the Bear river, however, was taken in deep soil near a stream." Thaeler (1972) summarized known Utah localities and presented elevations for three of these, which ranged from 8,000 to 9,000 ft.

Based on the few historical occurrences, the abundance of this species is presumed to be low. Recent documentation of the continued presence of this species in the state is lacking, however, and the status of populations is unknown. Threats to populations are unknown. In general, pocket gophers are considered pests and are widely subject to eradication efforts, which may be a threat to this species in some areas.

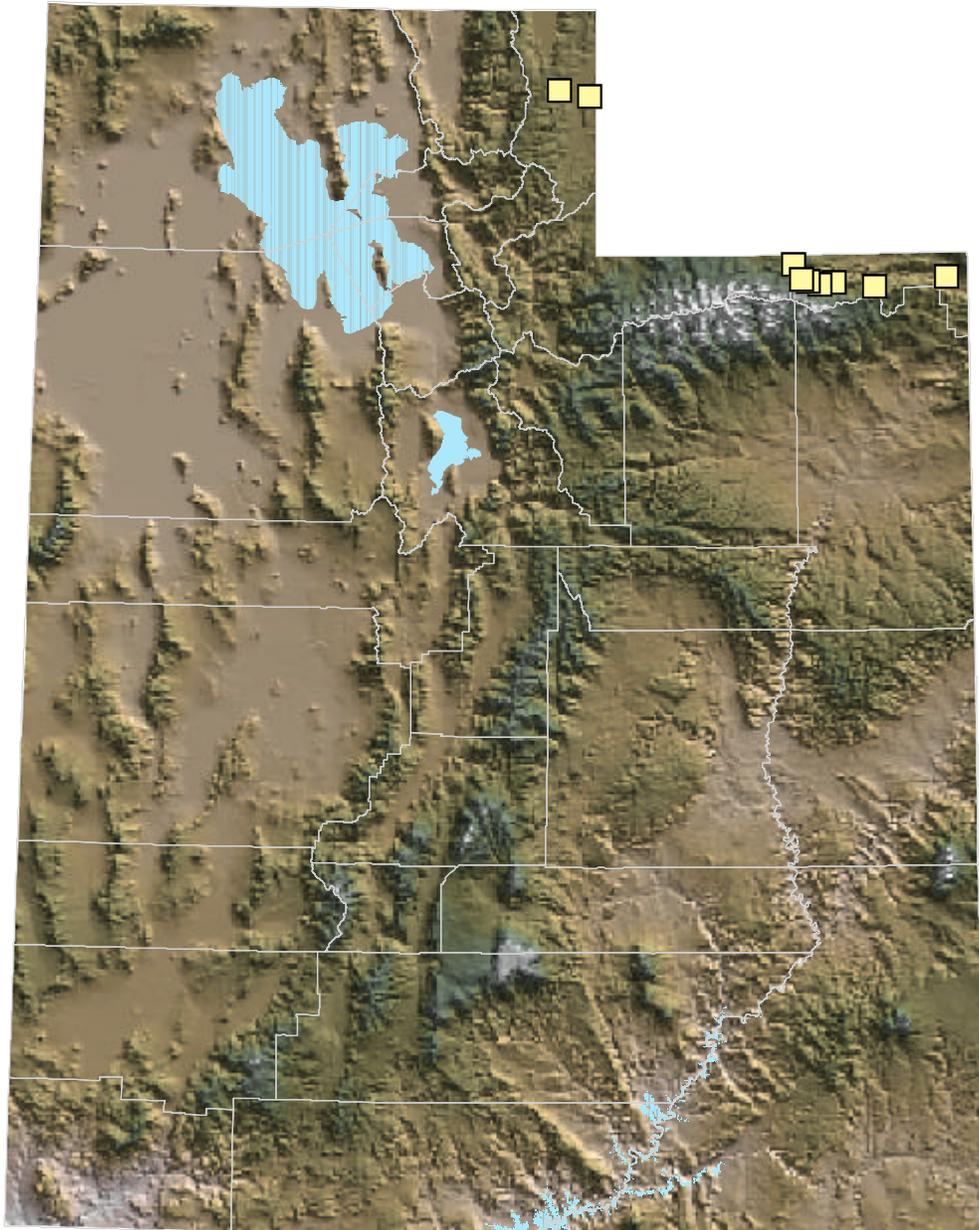


Figure 112. The distribution of records of the Idaho pocket gopher (*Thomomys idahoensis*).

Olive-backed Pocket Mouse
Perognathus fasciatus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Kangaroo Rats, Kangaroo Mice, and Pocket Mice (Heteromyidae)

SUBSPECIES: The subspecies of this species that occurs in Utah is *Perognathus fasciatus callistus*.

OTHER NAMES: Durrant (1952) referred to this species as *Perognathus callistus*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the northeast corner of the state (Fig. 113) and has been reported to occur in few localities. Habitat data have been reported for this species in Utah by Hayward and Killpack (1956), who trapped it "on sandy soil or sand mixed with fine gravel where the predominant vegetation was sagebrush (*Artemisia tridentata*), shadscale (*Atriplex*) and *Tetrademia* [horsebrush]."

No recent documentation of population status is available. Only nine individuals (specimens) are known to have been found in the state. This, together with the very limited distribution of this species in the state, suggests low abundance of the species in Utah. Population trend of this species in Utah is unknown, but it apparently has not been detected since 1954. Threats to this species in Utah are not known. The region in which the sole records have been obtained has been dramatically impacted by the construction of Flaming Gorge Reservoir since the last records were obtained. The general decline of sagebrush steppe habitat in recent years is also of potential importance to the status of remaining populations.

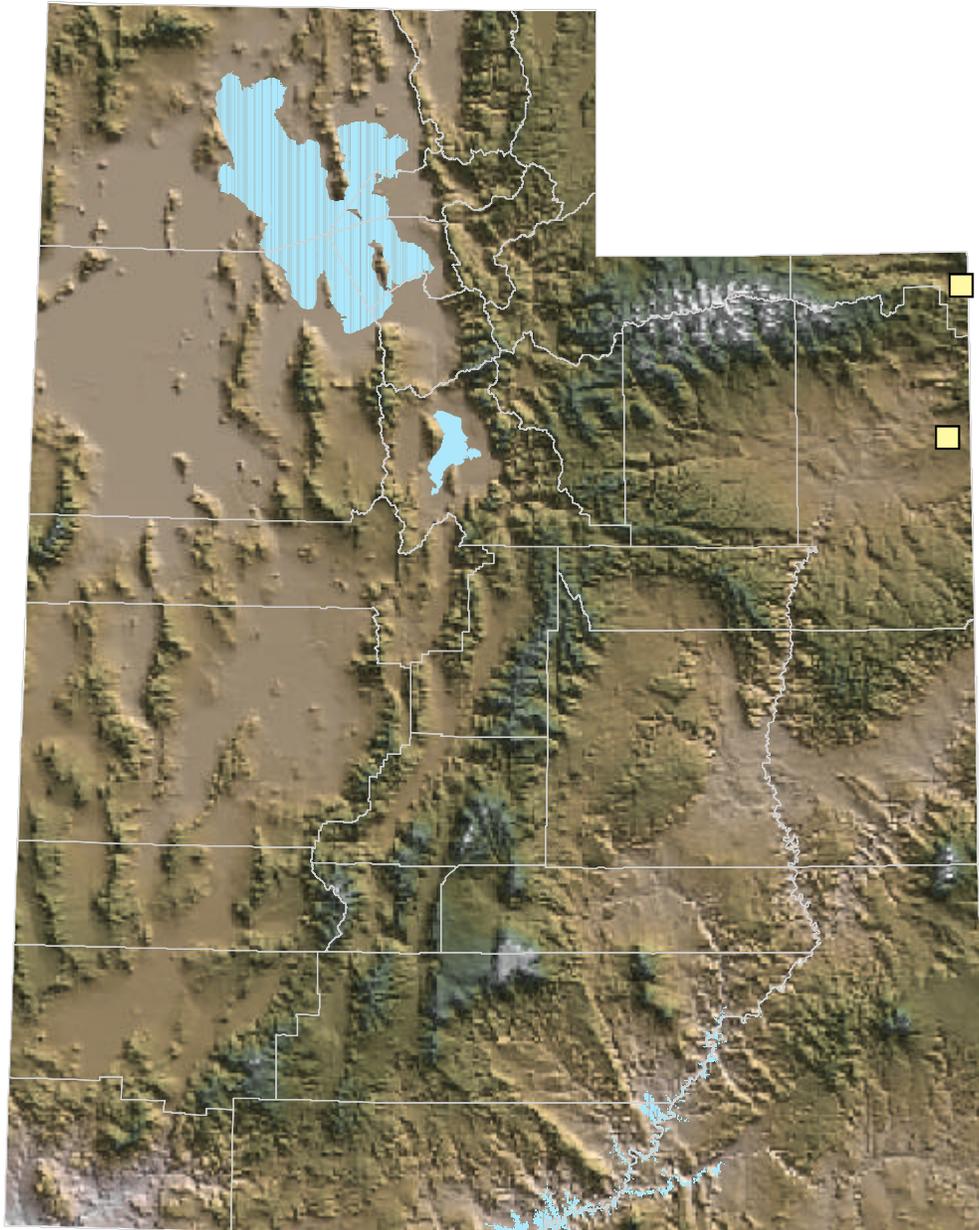


Figure 113. The distribution of records of the olive-backed pocket mouse (*Perognathus fasciatus*).

Silky Pocket Mouse
Perognathus flavus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Kangaroo Rats, Kangaroo Mice, and Pocket Mice (Heteromyidae)

SUBSPECIES: The subspecies that occurs in Utah is *Perognathus flavus hopiensis*.

OTHER NAMES: Durrant (1952) referred to this species as Baird's pocket mouse.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in the southeast corner of the state in southern San Juan County (Fig. 114). Durrant (1952) provided elevations of two of the Utah localities: 4,500 and 4,600 ft. Habitat associations in the state have not been reported. Best and Skupski (1994), discussing the habitat of this species in Arizona, commented: "Presence of a grassy cover may be the most important requisite in habitat selection for these mice."

Few recent records are available, and information regarding the current status of most populations is not available. Population estimates and assessments of population trends have not been produced. Because habitat conditions may have changed dramatically in this area in recent years as a result of intensive agricultural use and nonnative plant invasions, the persistence of these populations is uncertain.

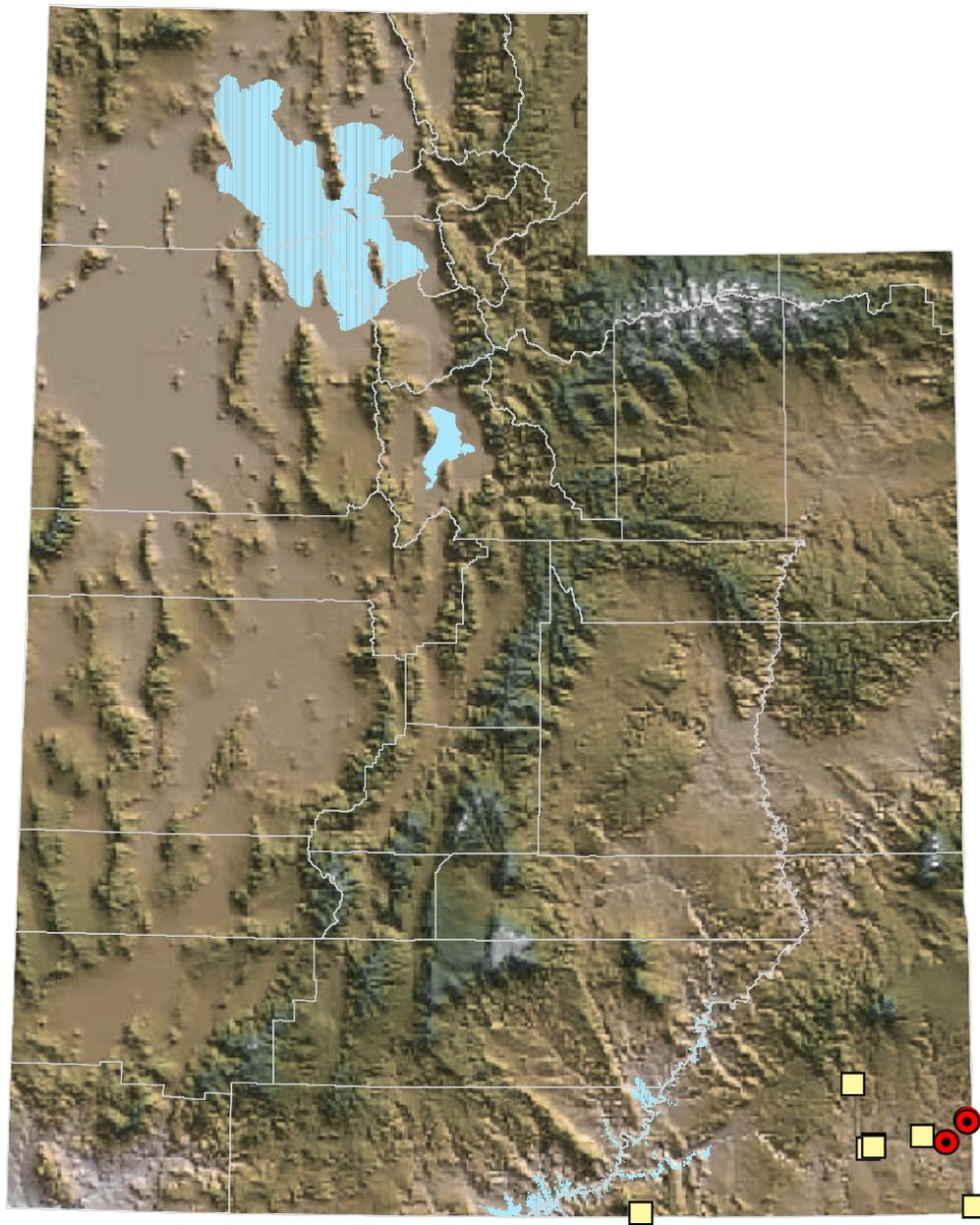


Figure 114. The distribution of records of the silky pocket mouse (*Perognathus flavus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Rock Pocket Mouse
Chaetodipus intermedius

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Kangaroo Rats, Kangaroo Mice, and Pocket Mice (Heteromyidae)

SUBSPECIES: The subspecies that occurs in Utah is *Chaetodipus intermedius crinitus*.

OTHER NAMES: This species was formerly included in the genus *Perognathus* (e.g., Benson 1935, Durrant 1952, Hall 1981).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in few localities in southern San Juan County (Fig. 115) (Benson 1935, Durrant 1952) and in southern Washington County (Pritchett 1991.). It has been reported to occur in low-elevation desert scrub dominated by blackbrush, creosote bush, and bursage (Pritchett 1991). Benson (1935) found the species in association with rocky habitat.

The abundance of this species is believed to be low based on numbers of reported captures. Benson (1935) reported three specimens collected in Utah, and these were the only specimens from Utah known to Durrant (1952). Pritchett (1991) captured just one individual among nearly 2,500 small mammals captured during his study of Washington county mammals. Population trend of this species in Utah is not known. Specific threats to population viability have not been documented.

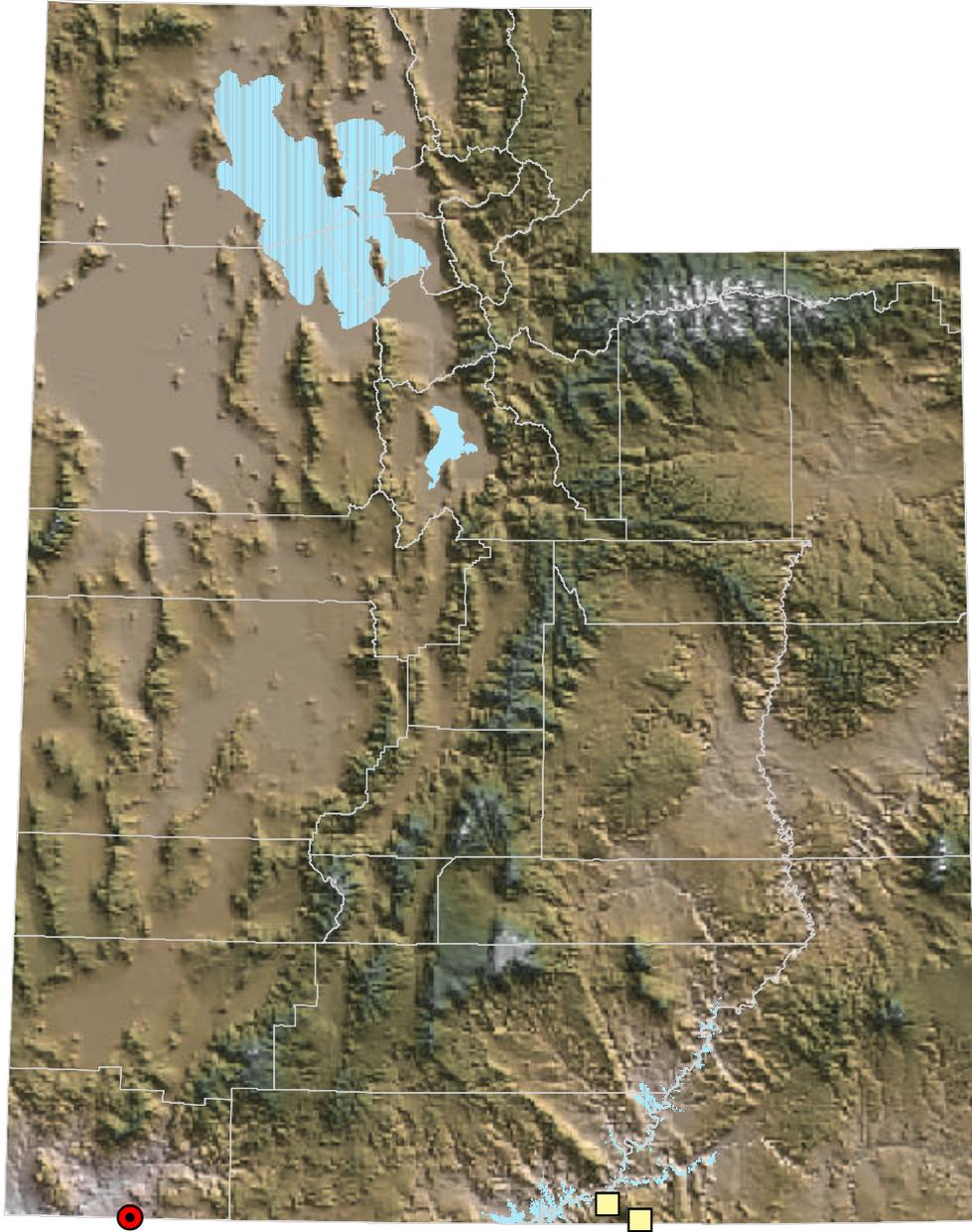


Figure 115. The distribution of records of the rock pocket mouse (*Chaetodipus intermedius*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Desert Pocket Mouse
Chaetodipus penicillatus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Kangaroo Rats, Kangaroo Mice, and Pocket Mice (Heteromyidae)

SUBSPECIES: The subspecies that occurs in Utah is *Chaetodipus penicillatus sobrinus*.

OTHER NAMES: This species was formerly included in the genus *Perognathus* (e.g., Durrant 1952, Stock 1965).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southern Washington County (Fig. 116). The few records of this species suggest an association with sandy substrates of wash bottoms in areas that are sparsely vegetated with desert scrub or desert riparian plant assemblages (Stock 1970, Pritchett 1991).

Individuals have been rarely encountered. Stock (1970) examined just 2 specimens, and Pritchett (1991) tentatively identified another 2 specimens among almost 2,500 small mammals that he captured during a study of small mammals in Washington County. Because data are few, population estimates and assessment of population trends are not available. Habitat loss and alteration are potential threats to these populations. Destruction of burrows by livestock and off-road vehicle use as well as destruction and modification of desert riparian habitat by these activities are of importance to the persistence of populations.

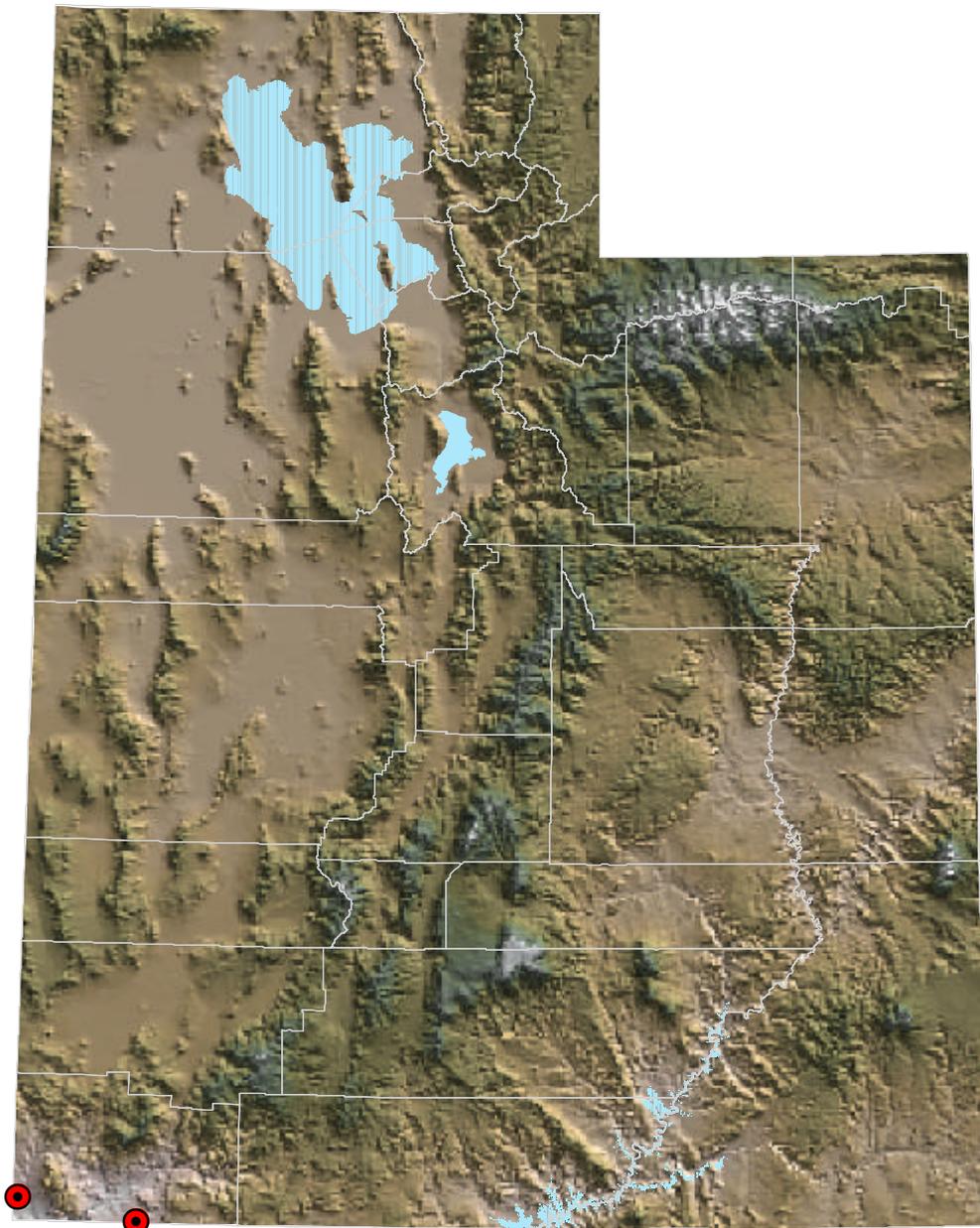


Figure 116. The distribution of records of the desert pocket mouse (*Chaetodipus penicillatus*).

Dark Kangaroo Mouse
Microdipodops megacephalus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Kangaroo Rats, Kangaroo Mice, and Pocket Mice (Heteromyidae)

SUBSPECIES: Two subspecies, *Microdipodops megacephalus leucotis* and *M. megacephalus paululus*, occur in Utah, both of which are endemic to the state.

OTHER NAMES: The first specimens collected in Utah were identified as members of a new subspecies of the pale kangaroo mouse, *Microdipodops pallidus albiventer* (Hall and Durrant 1937, Hall and Johnson 1938). Hall and Durrant (1941), however, referred Utah populations to the species *M. megacephalus* (see also Hall 1941).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in Utah only in Tooele, Juab, Millard, and Beaver counties (Fig. 117) (Durrant 1952, Hall 1981). Hall (1981) indicated a hiatus in the range of this species in Utah, the gap being in approximately the area of Juab and northern Millard counties; other authors have indicated no such disjunction of the range (Durrant 1952, O'Farrell and Blaustein 1974). Little has been written regarding habitat associations in Utah. Reported elevations range from 4,400 ft to 5,400 ft (Durrant 1952). O'Farrell and Blaustein (1974), writing of this species throughout its range, stated: "The habitat of *M. megacephalus* lies exclusively in the Upper Sonoran Life-zone The species is restricted to fine, gravelly soils However, near the margins of its range, it may occur in sand dunes."

This species seemingly is rare in Utah, but no estimates of population size have been produced. Population trends have not been assessed, but the majority of records are historical, which could reflect declining abundance or lower sampling effort. Changes to habitat have been especially marked in western Utah in recent years. Much habitat that was historically open and sparsely vegetated is now densely vegetated with cheatgrass (*Bromus tectorum*) and other xeric-adapted introduced plant species. The effects of changes in plant species composition and habitat structure on kangaroo mouse populations are not known.

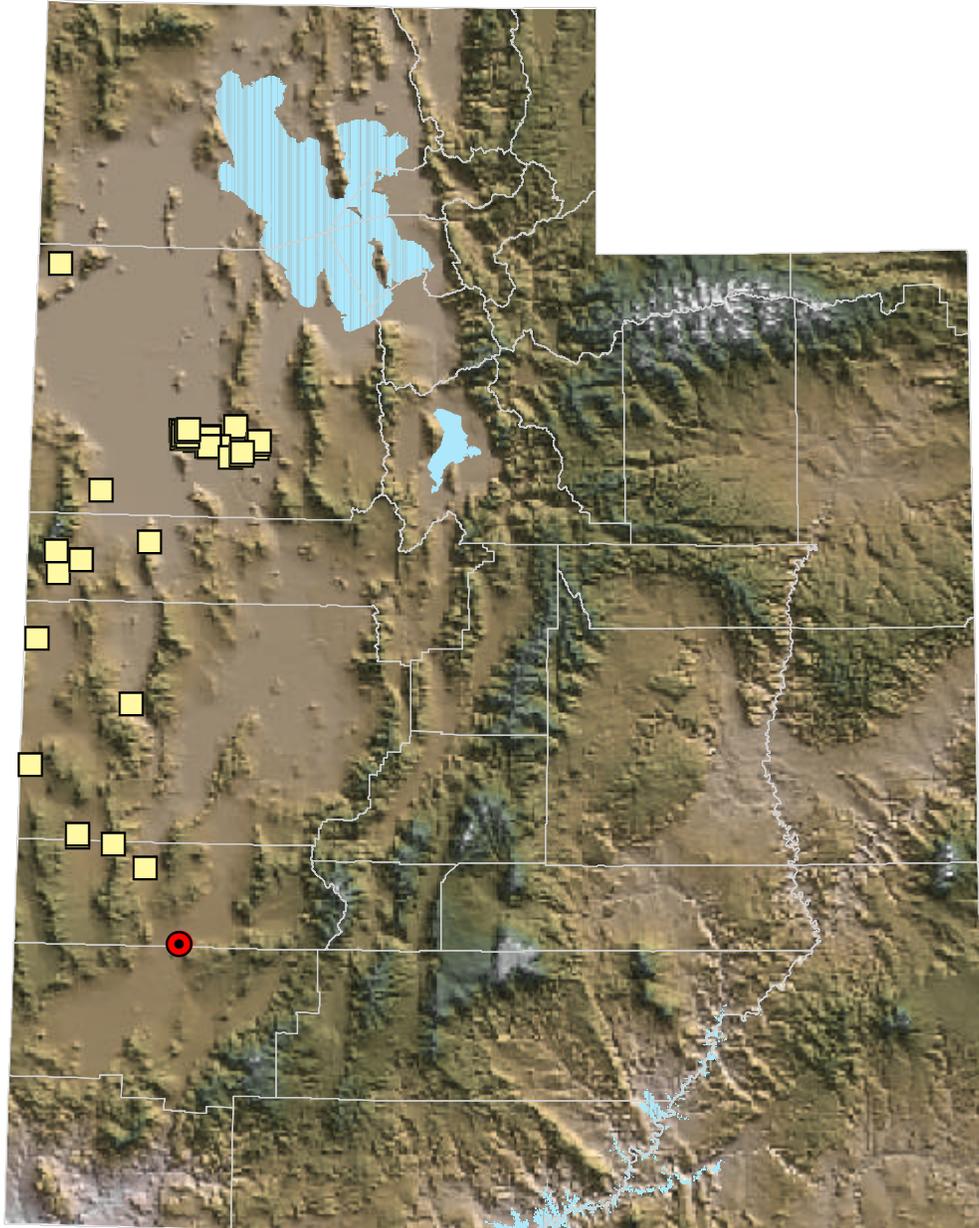


Figure 117. The distribution of records of the dark kangaroo mouse (*Microdipodops megacephalus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Desert Kangaroo Rat
Dipodomys deserti

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Kangaroo Rats, Kangaroo Mice, and Pocket Mice (Heteromyidae)

SUBSPECIES: The subspecies that occurs in Utah is *Dipodomys deserti deserti*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

A population of this species occurs in extreme southwest Washington County (Fig. 118). This population is restricted to the sandy soil of a wash bottom, which is bounded by soils unsuitable to this kangaroo rat. Durrant (1943) discussed the Utah habitat: "In every instance, these animals were taken in loose, shifting sand at the base of shrubs, in the bottom of the wash. While other species of the genus *Dipodomys* were taken on the benchlands, no *deserti* were captured. The limiting factor as far as this form is concerned appears to be one of soil. While the soil of the benchlands is largely sandy, with a few small scattered stones, little or no loose, shifting sand was observed. This loose, shifting sand seems to be limited to the bottom of the wash."

The size of the Utah population has not been estimated. In appropriate habitat, density may be high. Pritchett (1991) reported the capture of 97 individuals along several miles of the Beaver Dam Wash. Periodic flooding of the wash can result in short-term population decline or extirpation followed by recolonization (Durrant 1952, Stock 1965). Stock (1965) warned: "Unfortunately, the areas utilized by these kangaroo rats are also used by man. Efforts to rid the few pitifully small areas of cultivation in the wash of pocket gophers had led to distribution of poison bait which may ultimately [sic] exterminate the desert kangaroo rat from its only area of occurrence in Utah." Livestock use of the wash can also cause the trampling of burrows and lead to changes in vegetative structure and plant species composition, which could affect habitat suitability.

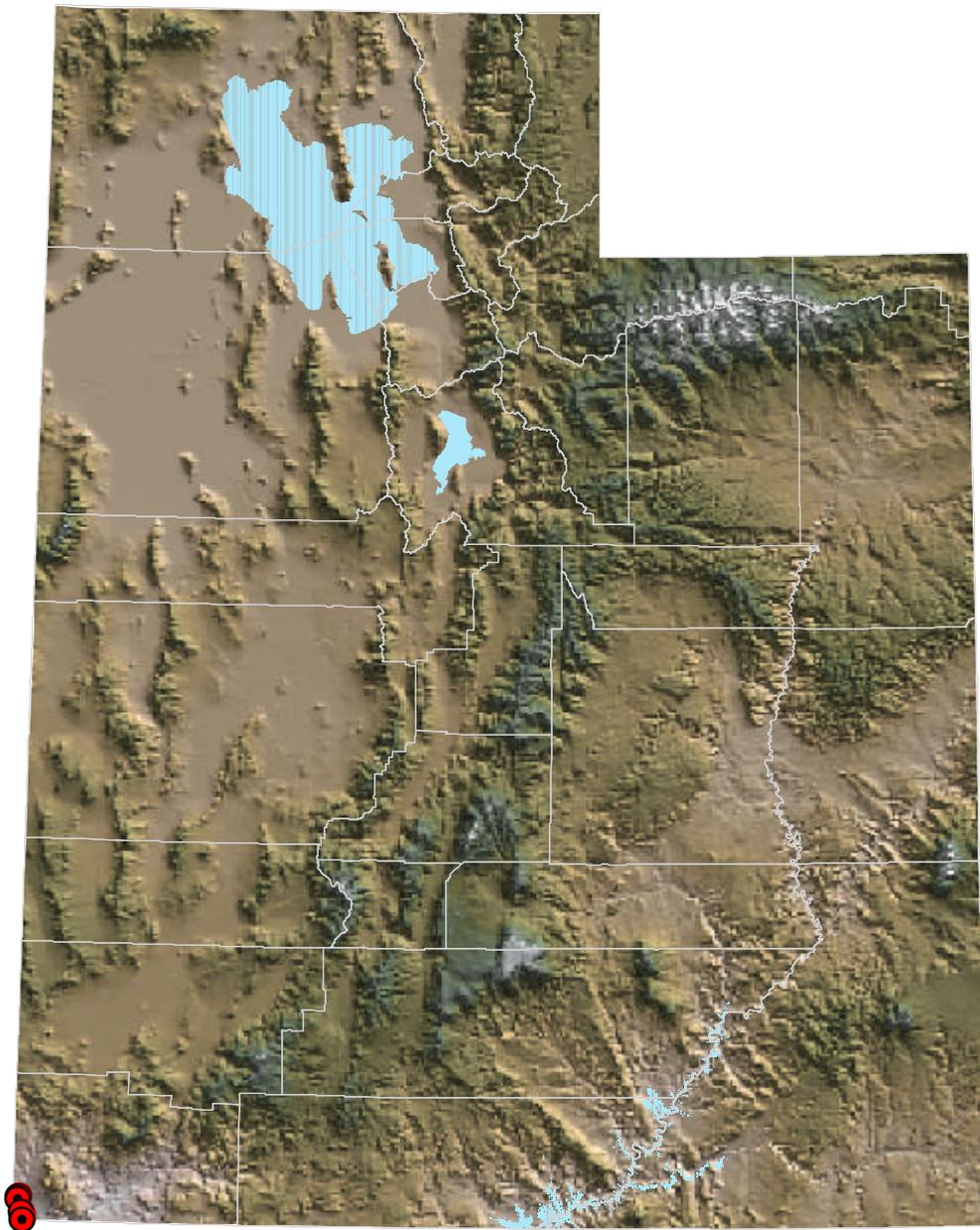


Figure 118. The distribution of records of the desert kangaroo rat (*Dipodomys deserti*).

Merriam's Kangaroo Rat
Dipodomys merriami

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Kangaroo Rats, Kangaroo Mice, and Pocket Mice (Heteromyidae)

SUBSPECIES: Two subspecies occur in Utah: *Dipodomys merriami frenatus* and *Dipodomys merriami merriami*. Durrant and Setzer (1945) and Durrant (1952) considered *Dipodomys merriami frenatus* to be a synonym of *Dipodomys merriami vulcani*, but other authors (e.g., Hall 1981) have regarded these two subspecies as distinct, with *vulcani* being restricted to a small area in northwestern Arizona.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in Washington County at low elevations (Fig. 119) in association with open desert scrub habitat. Populations are often associated with creosote bush in sandy substrates but may also occur in association with gravelly or hardpack substrates.

Population estimates have not been produced, but density may be high in suitable habitat. In some areas it is the most abundant mammal. Declines in abundance have not been detected, but populations may be affected by habitat loss and degradation. Large tracts of suitable habitat have been lost to urban expansion and development. Nonnative plant species are of concern in this area. Cheatgrass is of particular importance because it has the potential to alter habitat structure by filling barren patches in sparsely vegetated desert scrub habitat.

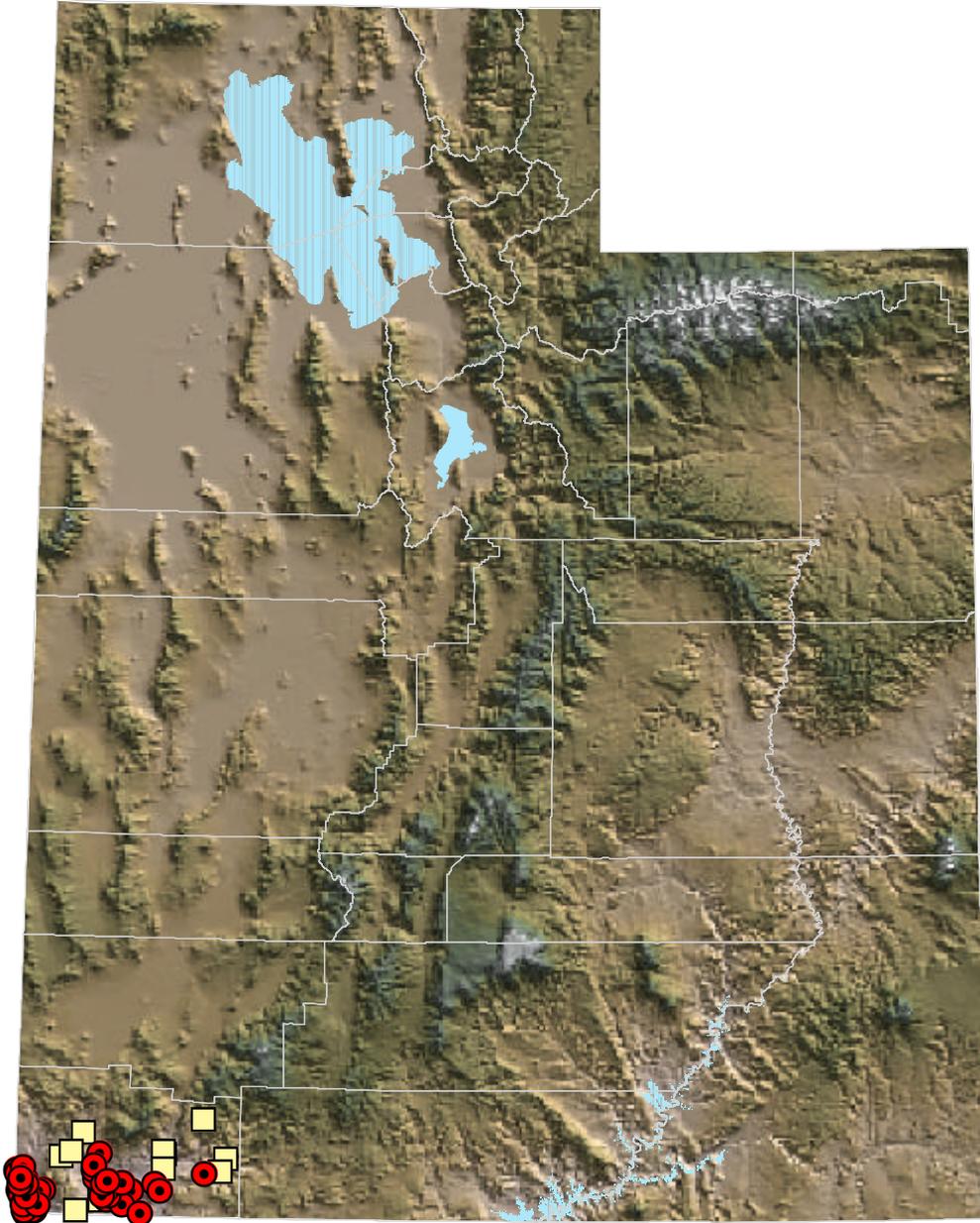


Figure 119. The distribution of records of Merriam's kangaroo rat (*Dipodomys merriami*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Cactus Mouse
Peromyscus eremicus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Mice, Rats, and Voles (Muridae)

SUBSPECIES: The subspecies that occurs in Utah is *Peromyscus eremicus eremicus*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in southern Washington County (Fig. 120). Durrant (1952) commented: "These animals are limited to extreme southwestern Utah, and occur mostly in the Lower Sonoran Life-Zone, where they seem to be more or less restricted to the cactus vegetation." Pritchett (1991) captured the species in a broad range of habitats, including desert riparian, desert scrub, pinyon-juniper, and mountain shrub habitat associations.

Within appropriate habitat in this restricted range, population density can be high. Pritchett (1991) captured this species in 22 of 27 trap lines and was the second most commonly captured small mammal. Few additional data are available, however, and population trends cannot be evaluated. Habitat loss and alteration is a primary concern in this region of Utah where development and urban expansion is prevalent.

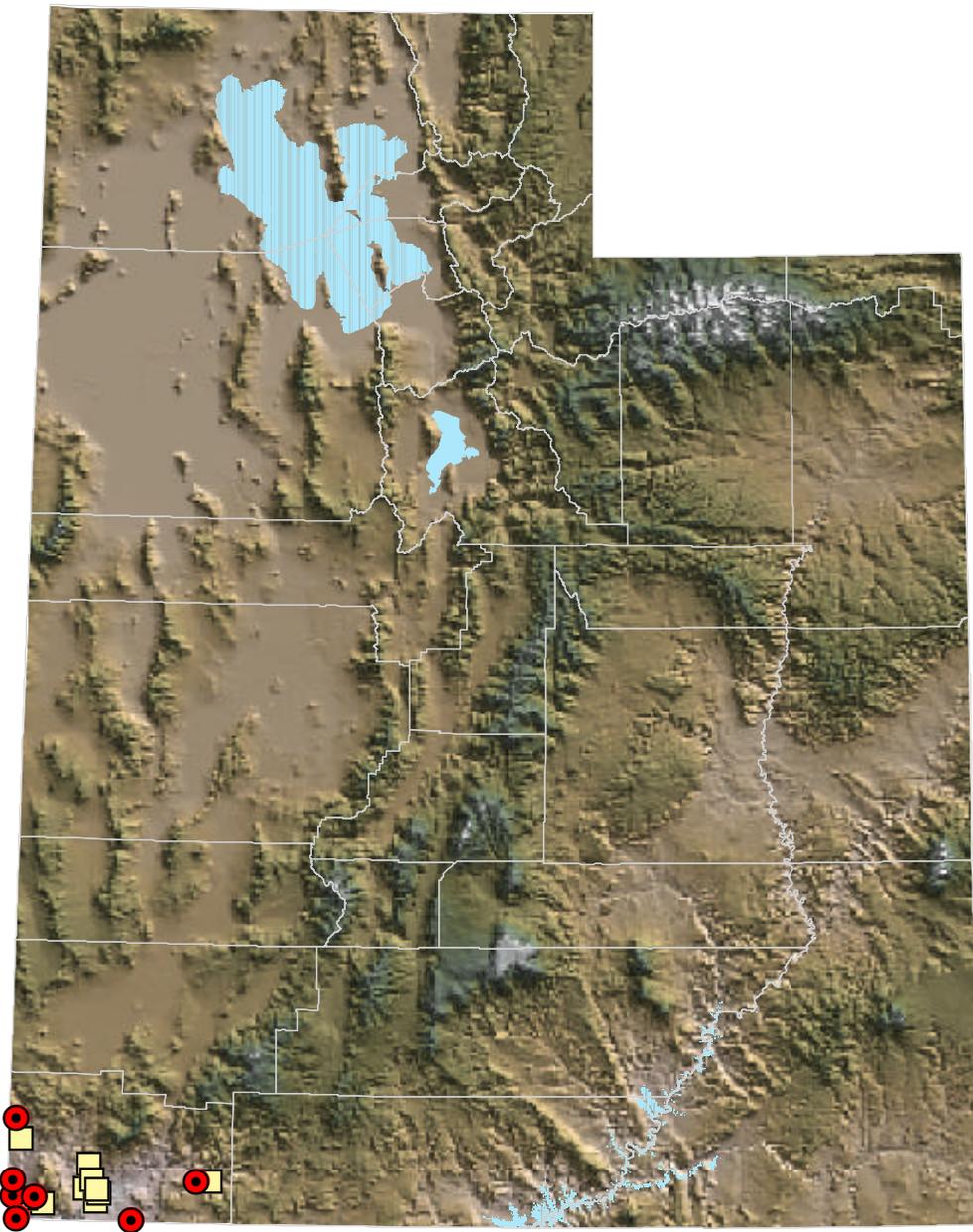


Figure 120. The distribution of records of the cactus mouse (*Peromyscus eremicus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Northern Rock Mouse
Peromyscus nasutus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Mice, Rats, and Voles (Muridae)

SUBSPECIES: The subspecies that occurs in Utah is *Peromyscus nasutus nasutus*.

OTHER NAMES: Hall (1981) and Zeveloff (1988) referred to this species as *Peromyscus difficilis*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species has been uncommonly encountered in the state, being detected at only two locations in San Juan County (Fig. 121). Little information is available regarding habitat associations in the state. Benson (1935) reported the habitat at a capture site as "a rocky gulley at Rainbow Bridge."

Abundance is not known. Only a few individuals have been encountered, and none in recent years. The region where the species has been encountered has been affected by the construction of Lake Powell, invasive plant species (e.g., salt cedar and cheatgrass), intensive agricultural use, and recreation. Whether these factors have affected the distribution or abundance of this species is not known.

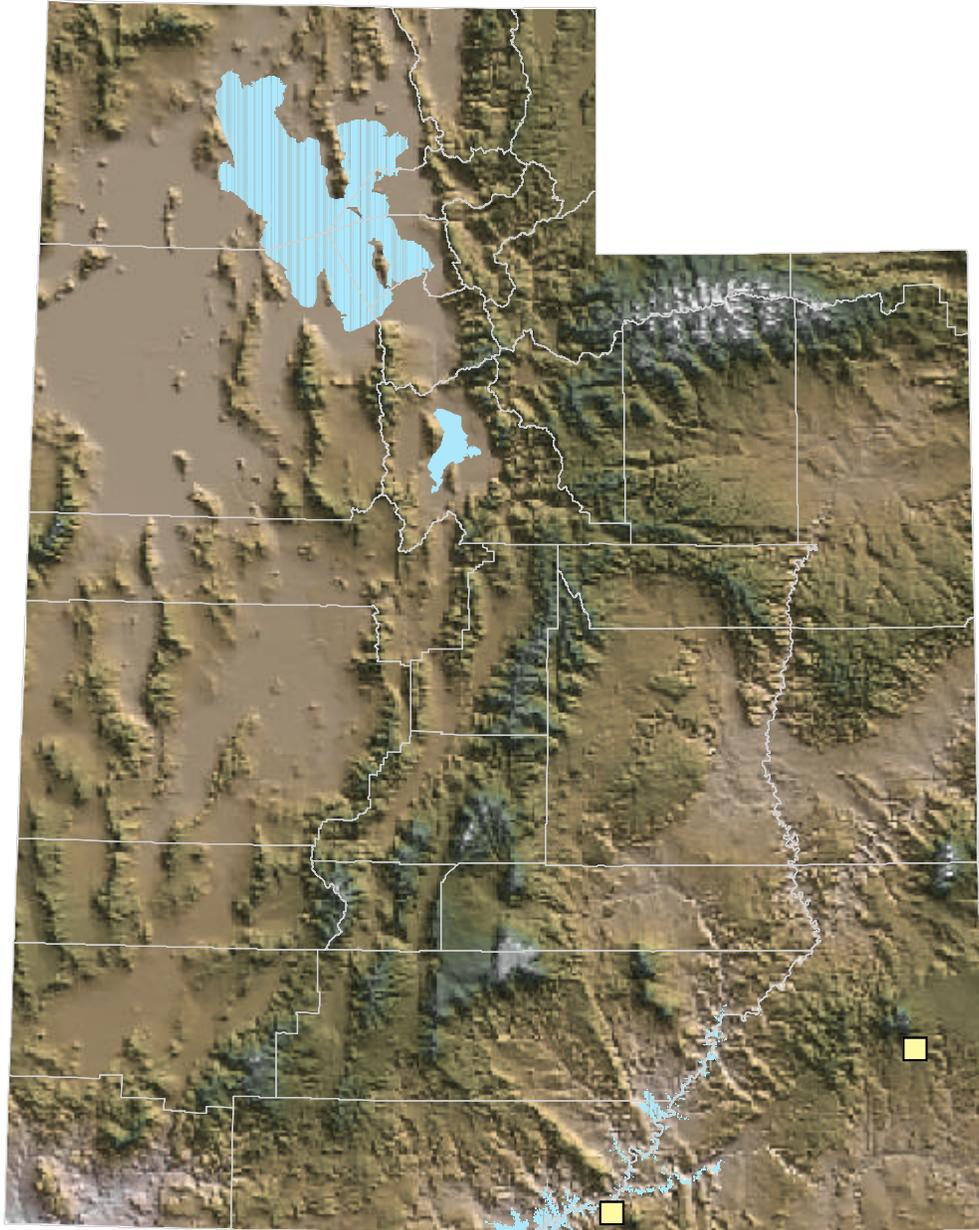


Figure 121. The distribution of records of the northern rock mouse (*Peromyscus nasutus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Southern Grasshopper Mouse
Onychomys torridus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Mice, Rats, and Voles (Muridae)

SUBSPECIES: The subspecies that occurs in Utah is *Onychomys torridus longicaudus*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

Except for an old record from the southern boundary of Zion National Park in southeastern Washington County (Fig. 122) (Presnall 1938), all Utah localities for this species are from southwestern Washington County, from Hurricane south and west (Durrant 1952, Stock 1965, Pritchett 1991). Pritchett (1991) captured this species exclusively in a sparsely vegetated, sandy wash where dominant plant species included creosote bush, Emery seepwillow, and desert willow.

Abundance of this species in Utah is not known, but data suggest that density is rather low. Pritchett (1991) captured just 11 individuals of nearly 2,500 mammals encountered. Data are not sufficient to assess population trends. Threats to population viability are not known. Portions of its habitat are subject to livestock use, but the effects of this on populations are not known. Loss of habitat to development may threaten some populations.

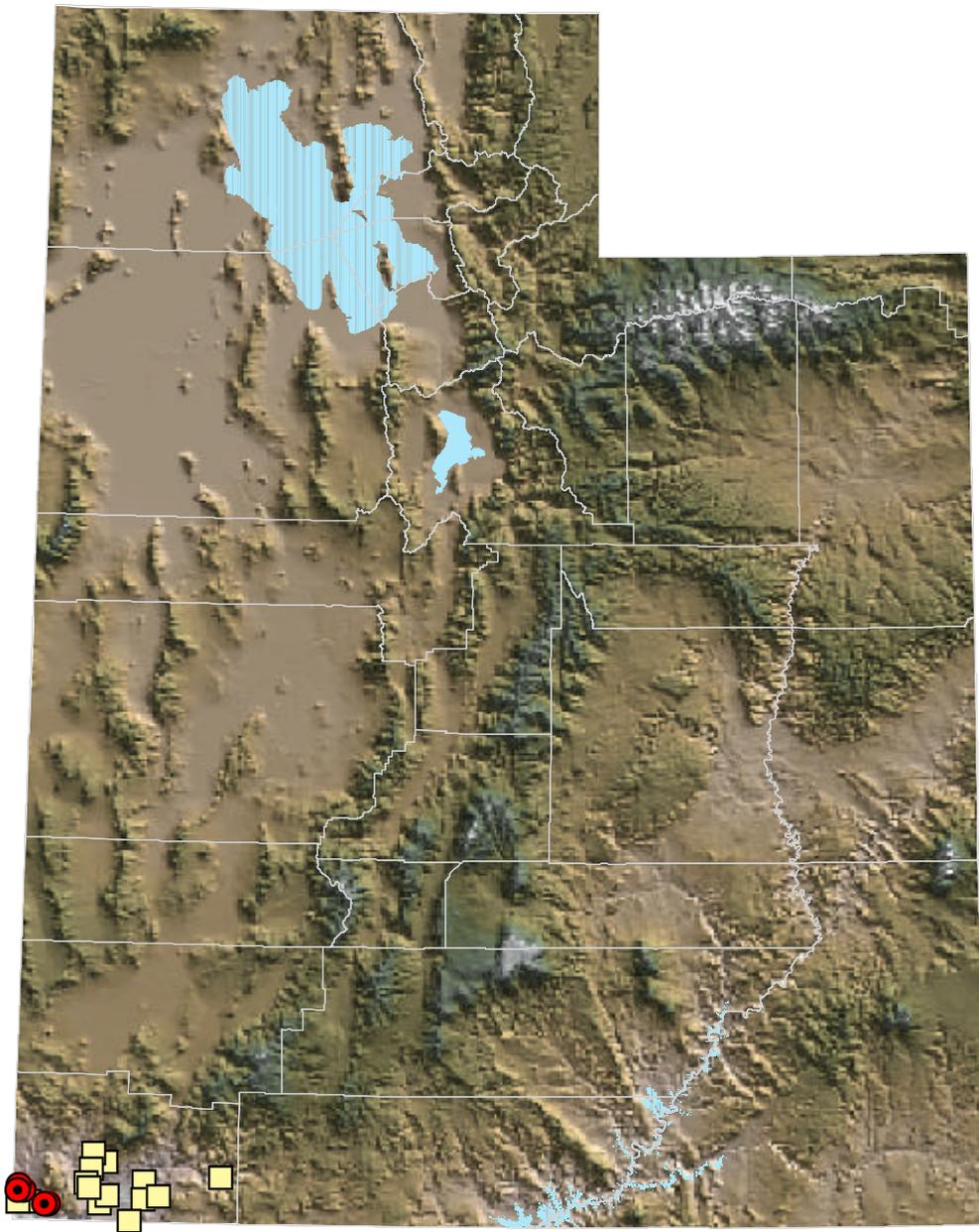


Figure 122. The distribution of records of the southern grasshopper mouse (*Onychomys torridus*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Stephens' Woodrat
Neotoma stephensi

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Mice, Rats, and Voles (Muridae)

SUBSPECIES: The subspecies that occurs in Utah is *Neotoma stephensi relictus*.

OTHER NAMES: The common name is frequently misspelled as Stephen's woodrat.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs in San Juan County in southeast Utah (Fig. 123) (Benson 1935, Durrant 1952, Hoffmeister and de la Torre 1960, Hall 1981). Populations usually occur in the juniper or juniper-pinyon habitat, but has occasionally been captured in ponderosa pine (Hoffmeister and de la Torre 1960, Jones and Hildreth 1989) Benson (1935) noted an association with rocky areas. Hoffmeister and de la Torre (1960) gave the elevations of two Utah localities: 4,000 and 8,500 ft. They also commented: "... *N. stephensi* is found in rocky situations, usually where the rocks are in piles, and usually where there are pinons and junipers. *Neotoma stephensi* is not a cliff dweller, although it may be found in the general vicinity of cliffs, but is found where the rocks have rolled down and become stacked. However, even though suitable rocks may be present, *N. stephensi* most likely will not be found if pinons and junipers are absent."

Few individuals have been encountered in the state, and no confirmed records have been documented in recent years. Whether populations that were historically encountered persist is not known. Alteration and loss of habitat, particularly as a result of fire, livestock grazing, or invasive plant species, is of potential importance to the current status of these populations.

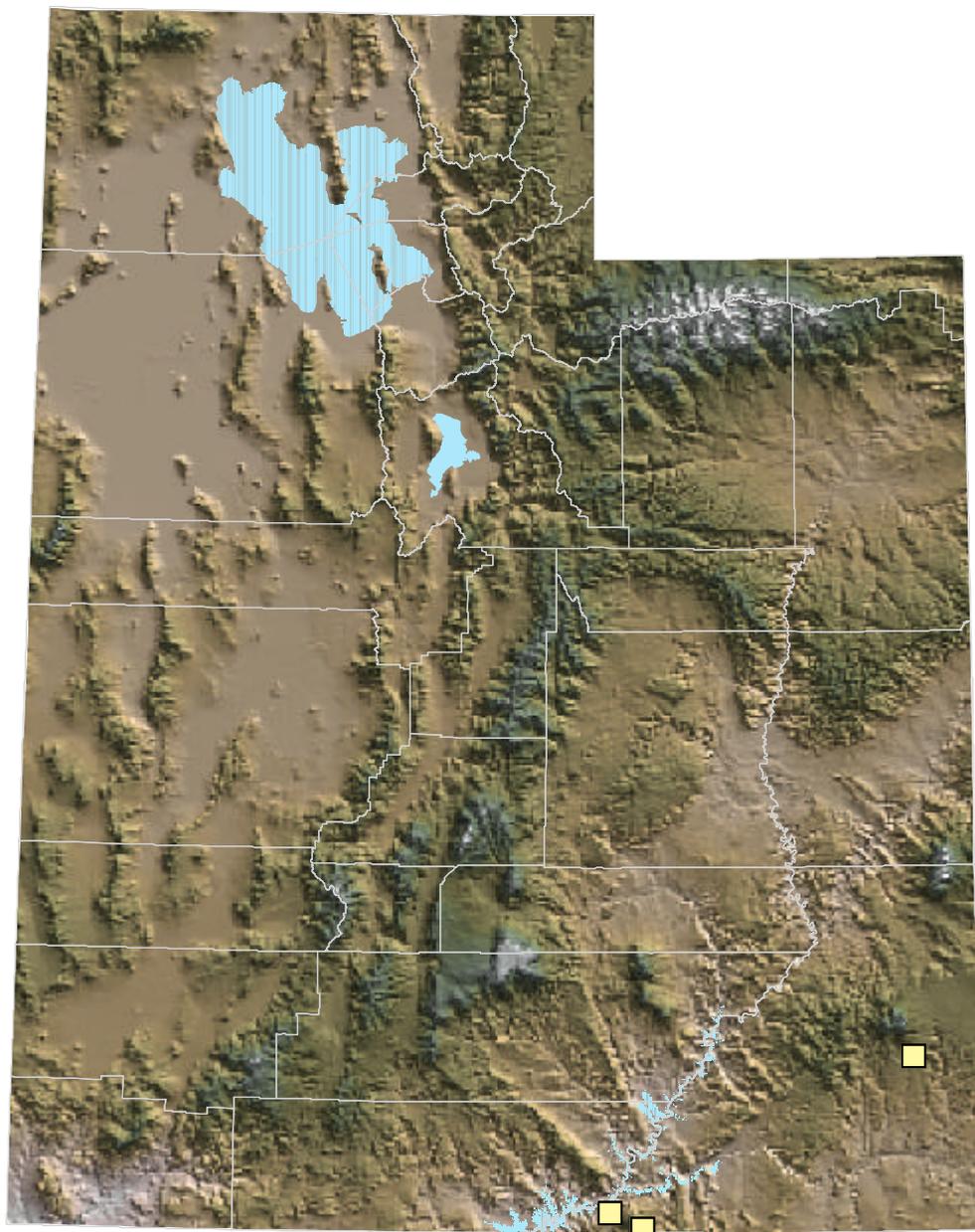


Figure 123. The distribution of records of Stephen's woodrat (*Neotoma stephensi*).

Mogollon Vole
Microtus mogollonensis

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Mice, Rats, and Voles (Muridae)

SUBSPECIES: The subspecies that occurs in Utah is *Microtus mogollonensis navaho*, which is endemic to Navajo Mountain on the Utah-Arizona state line. Frey and Yates (1995) questioned the validity of the taxon *navaho* on genetic grounds, but considered morphologic distinctness sufficient to warrant the retention of this subspecies.

OTHER NAMES: This species was formerly considered to be conspecific with the Mexican vole, *Microtus mexicanus* but was recognized as a distinct species by Frey and LaRue (1993) and Frey and Yates (1995).

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003) under the name Mexican vole (*Microtus mexicanus*).

DISTRIBUTION AND ABUNDANCE IN UTAH

The species occurs on Navajo Mountain, San Juan County (Fig. 124). Spicer (1987) found the species to occur on the mountain above 8,700 ft., but earlier records suggest that voles formerly may have occurred as low as 7,000 ft. Most recent data indicate their current presence only at the higher elevations of the mountain (Spicer 1987). Populations occur in mountain shrub habitat consisting of dense, low-growing thickets of *Ceanothus* and snowberry (*Symphoricarpos*), with manzanita (*Arctostaphylos*) and wild rose (*Rosa*) sometimes present. In most areas a sparse understory of grasses or forbs and an open overstory of small aspen (*Populus tremuloides*) are present (Benson 1935, Spicer 1987). Both Benson (1935) and Spicer (1987) noted that this species is uncommonly associated with wet ground.

Spicer (1987) considered the population size to be small, capturing 5 voles and finding 6 runway complexes (4 of which were inactive). He noted that many of the smaller patches of suitable habitat were unoccupied and that voles were uncommon in most occupied patches, estimated by prevalence of runways, cuttings, feces, etc. Considering habitat degradation and loss, Spicer (1987) believed that population size had probably declined, although he noted that this conclusion was based on insufficient data. Intensive livestock grazing on Navajo Mountain is responsible for reduced size and density of patches of shrubs and grasses with which the voles are associated (Spicer 1987).

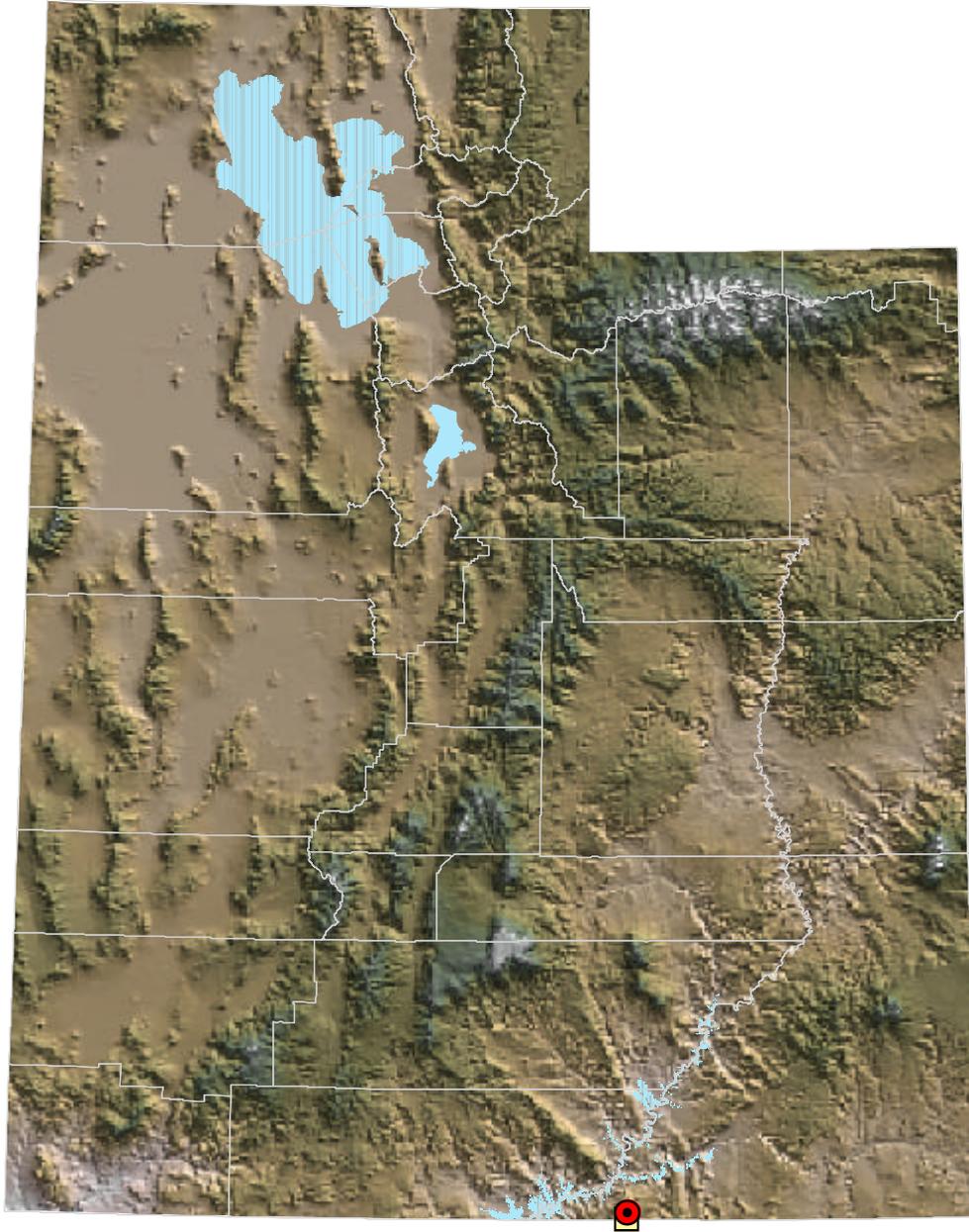


Figure 124. The distribution of records of the Mogollon vole (*Microtus mogollonensis*). The red circle represent records since 1983, inclusive, and the yellow square represent records before 1983.

Gray Wolf
Canis lupus

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Dogs (Canidae)

SUBSPECIES: Prior to the extirpation of the original resident Utah populations, the only subspecies recorded in the state had been *C. l. youngi*. The subspecies *irremotus* may have occurred in the northeastern part of the state (Long 1965, Hall 1981), but its presence was never documented. Whether modern taxonomic examinations would support the recognition of these nominal subspecies cannot be known.

CONSERVATION STATUS DESIGNATIONS

USFWS reclassified wolves occurring in northern Utah north of highways 50 and 70 as threatened under the Endangered Species Act during 2003, and any wolves occurring south of these highways are classified as endangered under the Endangered Species Act (68 Federal Register 15803-15875). The species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Breeding populations no longer occur in Utah, and have yet to be reestablished by dispersers from Wyoming and Idaho populations. During the late 1800s and early 1900s, wolves were apparently quite common throughout much of the state, but historical data are scant. Young and Goldman (1944) listed the known museum records, comprising only a few specimens (Fig. 124). Barnes (1927), however, summarized large numbers of wolves killed during the early 1900s: state bounties were paid on more than 150 wolves during 1915 and 1916, and Biological Survey hunters killed more than 180 wolves between 1915 and 1925. An estimated 23 wolves persisted in the national forests of Utah during the late 1920s (Barnes 1927, see also Durrant 1952). The last wolf documented in Utah was killed during 1930 in San Juan County. Although most of the last records were from montane, forested regions, the species is believed formerly to have occurred in all habitats except for barren areas of the Bonneville Basin (Young and Goldman 1944, Hall 1981). Most reports, however, did not specifically comment on habitat affinities.

Recently, dispersers from reintroduced populations in Idaho and Wyoming have appeared in Utah. Sheep kills reported during the summer of 2002 were considered by some experts to be characteristic of wolf kills, suggesting the presence of an individual in Cache County for a short period. Evidence, however, was ultimately inconclusive. During December 2002 an adult was captured in Morgan County (Fig. 124) that had originated from a population reintroduced in Yellowstone National Park. This wolf was transported back to Yellowstone, but it apparently had been accompanied by at least one other individual. None of the 2002 dispersers were successful in establishing territories, however.

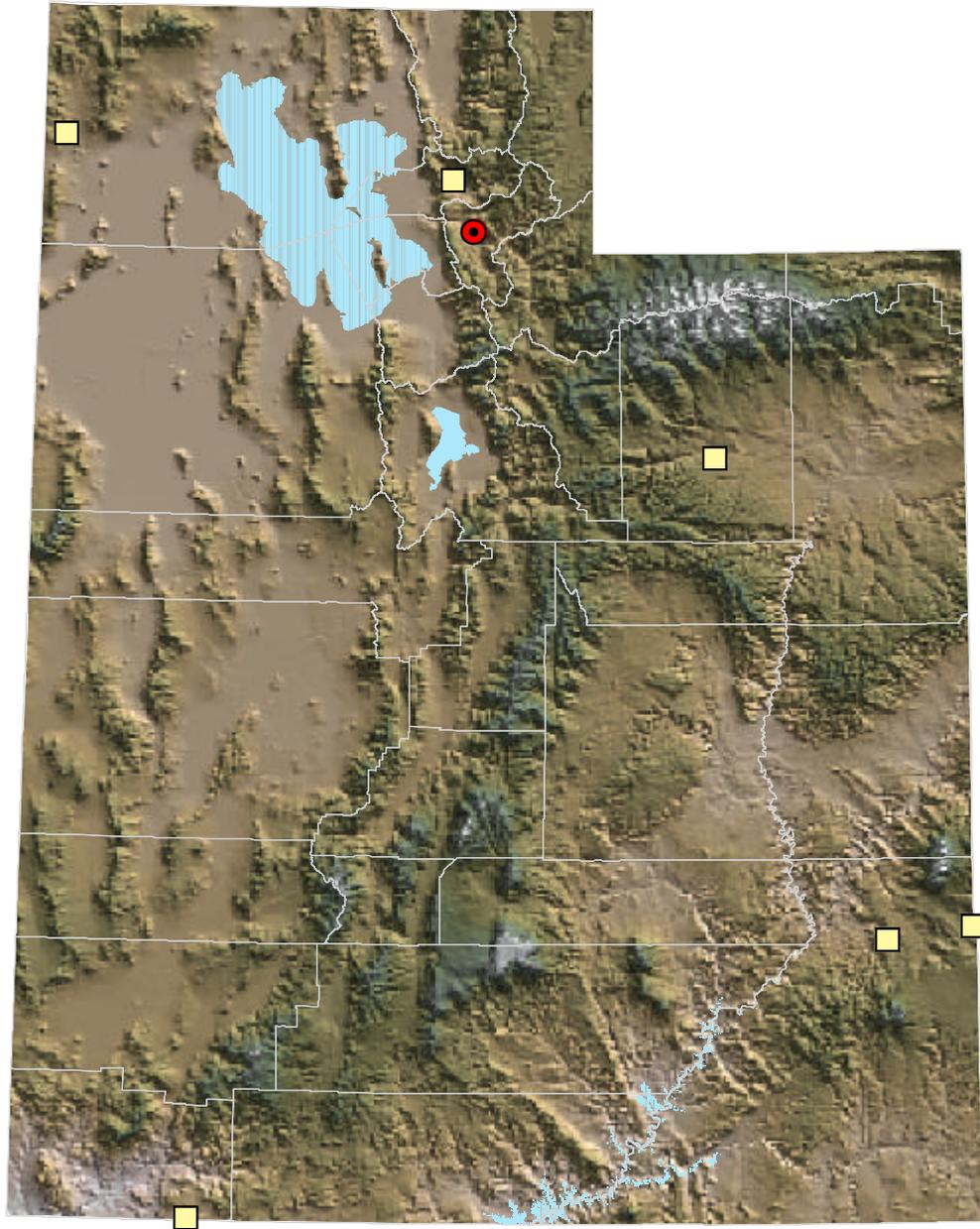


Figure 125. The distribution of records of the gray wolf (*Canis lupus*). The red circle represents a recent record, and yellow squares represent historical records.

Kit Fox
Vulpes macrotis

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Dogs (Canidae)

SUBSPECIES: Because the species-level taxonomy of swift and kit foxes is unstable, the recognition of subspecies in this group is uncertain. Most authors considering the kit fox to be distinct from the swift fox (see below) continue to recognize several subspecies. Under this arrangement, 3 subspecies occur in Utah (McGrew 1979, Hall 1981): *V. m. nevadensis* in the Bonneville Basin, *V. m. arsipus* in the Washington County, and *V. m. neomexicana* in San Juan County. The subspecific identity of the populations occupying eastern Utah north of San Juan County is not decisively known. McGrew (1979) referred these populations to the subspecies *nevadensis*. Hall (1981) assigned populations in Grand County to the subspecies *neomexicana*. Dragoo et al. (1990) proposed a taxonomic arrangement in which the kit fox is conspecific with the swift fox, *V. velox* with only one subspecies, *V. velox macrotis*, occurring in Utah.

OTHER NAMES: The taxonomic placement of the kit fox is uncertain and the subject of much debate. Some authorities (e.g., Dragoo et al. 1990) regard the taxon *macrotis* to be a subspecies of *V. velox*, the swift fox. Another view, the one tentatively adopted here and recognized by Jones et al. (1997), is that *macrotis* is a species distinct from *velox*.

CONSERVATION STATUS DESIGNATIONS

This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

The kit fox is found in scattered localities throughout Utah, but is absent from the higher-elevation, montane portions of the state (Fig. 125). Populations are associated with sparsely vegetated arid habitat, primarily greasewood-, shadscale-, or sagebrush-dominated habitat.

Although Durrant (1952) examined only four specimens (and knew of one other record) from Utah, recent capture data indicate that the species is generally sparsely distributed in many areas, but populations may be locally dense under favorable conditions. McGrew (1979) mentioned "92 kit fox sightings collected in [his (McGrew 1977)] two-year study in Utah." Populations are thought to be stable or perhaps declining. Threats include non-specific predator poisoning and habitat loss (McGrew 1979). Water development can allow broader coyote (*Canis latrans*) distribution in arid areas, and the presence of coyotes can lead to the exclusion of kit foxes. Changes in the small mammal prey base resulting from habitat alteration in association with nonnative plant invasions and land use practices is also of potential importance.

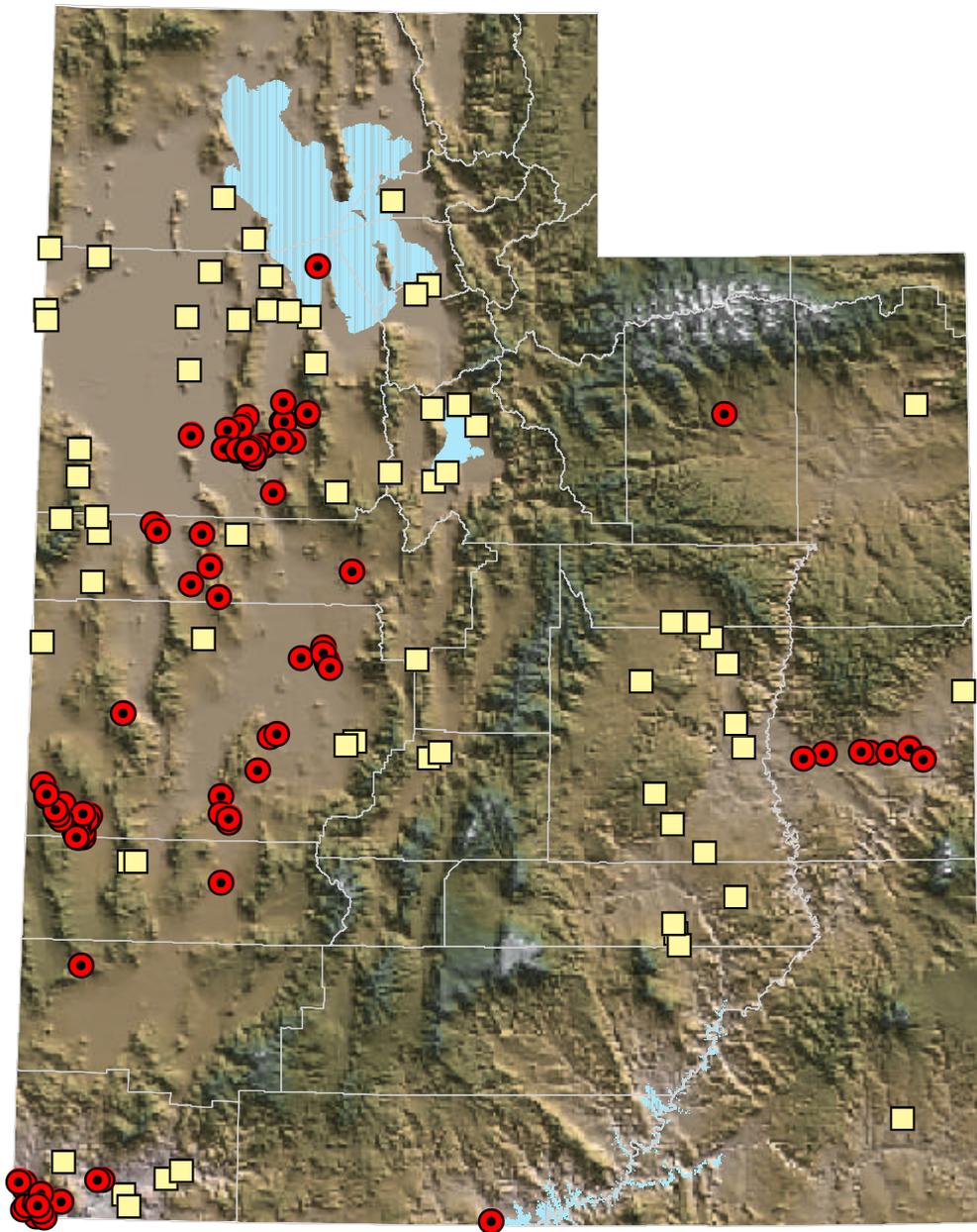


Figure 126. The distribution of records of the kit fox (*Vulpes macrotis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Grizzly Bear
Ursus arctos

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Bears (Ursidae)

SUBSPECIES: The subspecies *Ursus arctos horribilis* is the subspecies occurring in Utah. Formerly a subspecies *U. a. utahensis* was thought to have occurred in the state (Durrant 1952), but this subspecies is no longer considered valid (Hall 1984, Pasitschniak-Arts 1993).

OTHER NAMES: Formerly, the many geographical variants of the grizzly bear were considered to represent different species. *Ursus utahensis* was named by Merriam (1914) on the basis of a specimen collected in Utah, but this taxon is not now recognized.

CONSERVATION STATUS DESIGNATIONS

USFWS considers the species to be endangered in the contiguous 48 states under the Endangered Species Act (32 Federal Register 4001). This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

The grizzly bear no longer occurs in Utah, the last documented sighting having occurred in the 1920s. This species was reported to occur in scattered localities in montane areas of northern, central and southwestern Utah. Records are notably lacking from the interior Bonneville Basin and the Colorado Plateau, and grizzly bears probably occurred only sporadically in these arid regions. Most documented records (Fig. 127) (e.g., Merriam 1918) appear to have been from montane forests, but specific habitat associations were not documented in Utah.

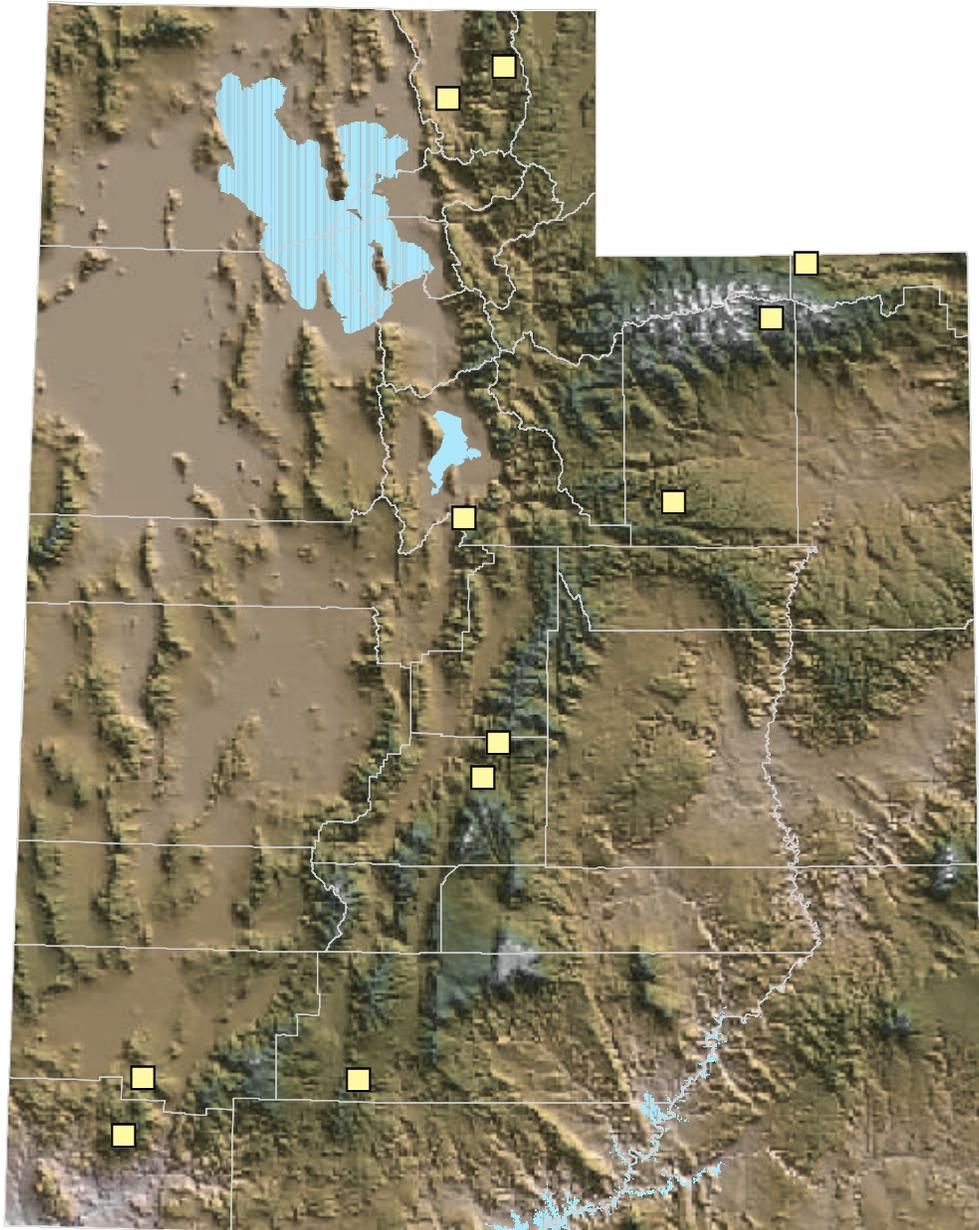


Figure 127. The distribution of records of the grizzly bear (*Ursus arctos*).

American Marten
Martes americana

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Weasels (Mustelidae)

SUBSPECIES: The taxonomy of this species is somewhat unstable (see below), but under both of the possible arrangements, the subspecies occurring in Utah would be *caurina*. The subspecies *origenes* to which Utah populations were formerly assigned (e.g., Hall 1981) is no longer recognized.

OTHER NAMES: An earlier arrangement recognized 2 species of martens in North America, in which case *M. americana* was restricted to eastern North America and the species *M. caurina* occurred in western North America (e.g., Durrant 1952). Recent molecular evidence supports this arrangement (Carr and Hicks 1997, Stone et al. 2002), but, as yet, the recognition of *M. caurina* as distinct has not been widely accepted.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species has been reported to occur in the Wasatch and Uinta mountains (Fig. 128) (Durrant 1952, Hall 1981, Hargis 1991). Barnes (1927) noted the presence of a population in the La Sal Mountains, but recent records from this region are lacking. In northern Utah, populations occur in association with mature coniferous forests. Hargis (1991) captured this species at seven localities in the Uinta Mountains that "were between 2800 and 3100 m elevation and were dominated by mature forests of mixed lodgepole pine (*Pinus contorta*), Engelmann spruce (*Picea engelmannii*), and subalpine fir (*Abies lasiocarpa*). Although the sites were fairly similar in terms of forest structure and vegetative composition, the degree of fragmentation varied from unfragmented (Spirit Lake) to highly fragmented (Long Park Reservoir)."

Few data are available regarding the abundance of this species, but abundance is thought to be low. Hargis (1991) captured 19 individuals, representing a trapping success rate of 1.47%. Population trends are not known. The lack of recent records from the La Sal Mountains suggests the possibility that that population has been lost. Similarly, the current status of populations in the Wasatch Mountains is not known.

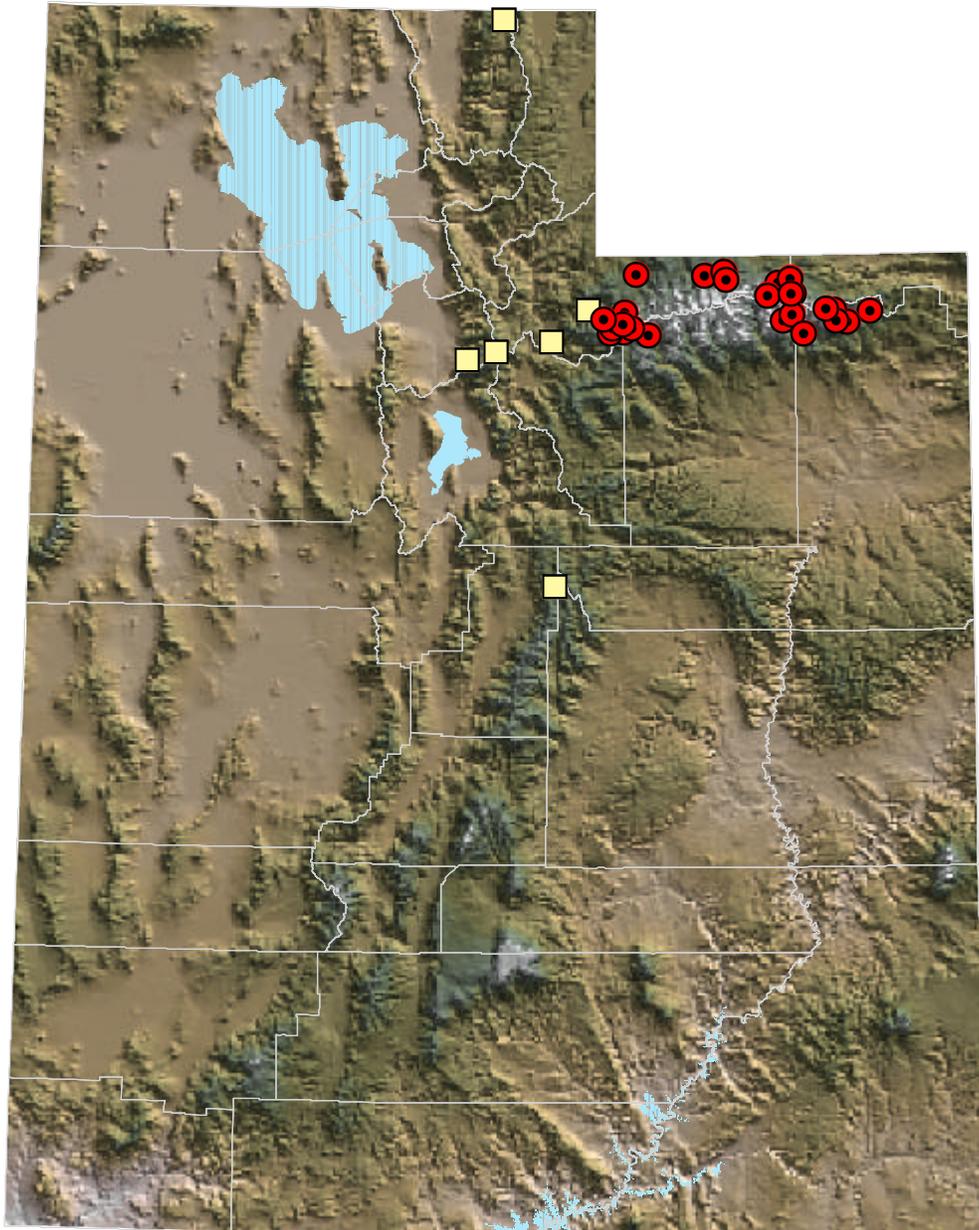


Figure 128. The distribution of records of the American marten (*Martes americana*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Black-footed Ferret
Mustela nigripes

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Weasels (Mustelidae)

SUBSPECIES: No subspecies have been proposed.

CONSERVATION STATUS DESIGNATIONS

This species was classified as an endangered species by USFWS during 1967 (32 Federal Register 4001). Populations in Uintah and Duchesne counties are classified as “nonessential experimental” under the Endangered Species Act (63 Federal Register 52823-52841) as part of a reintroduction program. This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Formerly this species may have been widespread but uncommonly encountered in eastern Utah. Durrant (1952) reported the only known Utah specimen of this species from San Juan County, collected in 1937. Information compiled by UDWR based on unconfirmed but probably valid sightings indicate the possibility that the species occurred throughout eastern Utah (Fig. 129). Prairie-dogs are the main prey of ferrets, and the distribution in Utah corresponds with parts of the distribution of Gunnison’s prairie-dog (*Cynomys gunnisoni*) and the white-tailed prairie-dog (*C. leucurus*) (see accounts for those species in this report). Captive-bred individuals of this species were released in Uintah County from 1999 to 2002, and this population is reproducing.

The loss of prairie-dog colonies through eradication measures and habitat conversion was probably the greatest threat to this species. Outbreaks of sylvatic plague (see accounts for prairie-dogs) also have the potential to catastrophically reduce the prey base and to kill ferrets. Diseases originating in domestic canines are also of importance to ferret populations; canine distemper was responsible for the loss of a population in Wyoming.

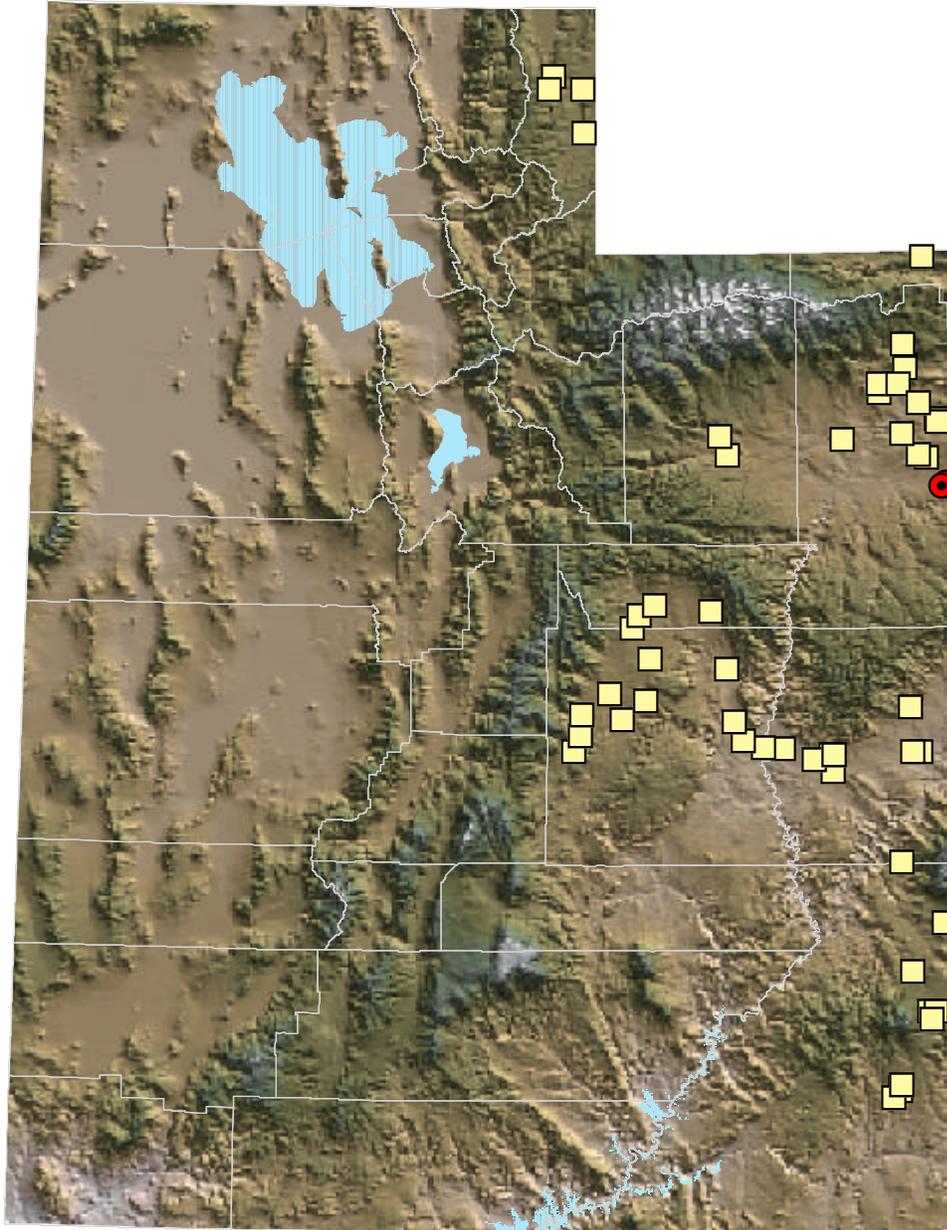


Figure 129. The distribution of records of the black-footed ferret (*Mustela nigripes*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Wolverine
Gulo gulo

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Weasels (Mustelidae)

SUBSPECIES: The subspecies that occurs in Utah is *Gulo gulo luscus*.

OTHER NAMES: The New World populations of this species were formerly known as *Gulo luscus* (e.g., Durrant 1952, Hall 1981).

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by USFWS or UDWR.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species formerly occurred in Utah in the Wasatch Mountains, the Uinta Mountains, the La Sal Mountains, and the high-elevation plateaus and mountains of the central part of the state south to Piute and Garfield counties (Fig. 130) (McKay 1991b). Conclusive data regarding the current status of the species are lacking; the species may be extant in remote parts of the former range. McKay (1991b) reviewed the status of the species in Utah and compiled and assessed recent reports (through 1990). The two most recent sightings (as of 1990) that were considered by her to be probably valid were: one in the Ashley National Forest, Daggett County, 20 July 1990 and another in the Manti-La Sal National Forest, Sanpete County, 24 July 1990. Another sighting of this species was made 4 July 1992 only 1/2 mile from the location of the 1990 sighting in Sanpete County. During the winter of 2003, tracks were photographed on the north slope of the Uinta Mountains, Summit County, that are quite likely to be the tracks of a wolverine. Additional data are needed to demonstrate extant status.

No specific habitat data have been reported for this species in Utah. Although McKay (1991b) and Durrant (1952) did not provide any habitat information for the reported sightings of this species in Utah, the locational data suggest that the most sightings have been in montane coniferous forest habitats, as would be expected for this species. In other states it has been shown that the presence of roads, such as logging roads, is negatively correlated with the presence of wolverines and that even human presence and activity seem to be incompatible with wolverine populations.

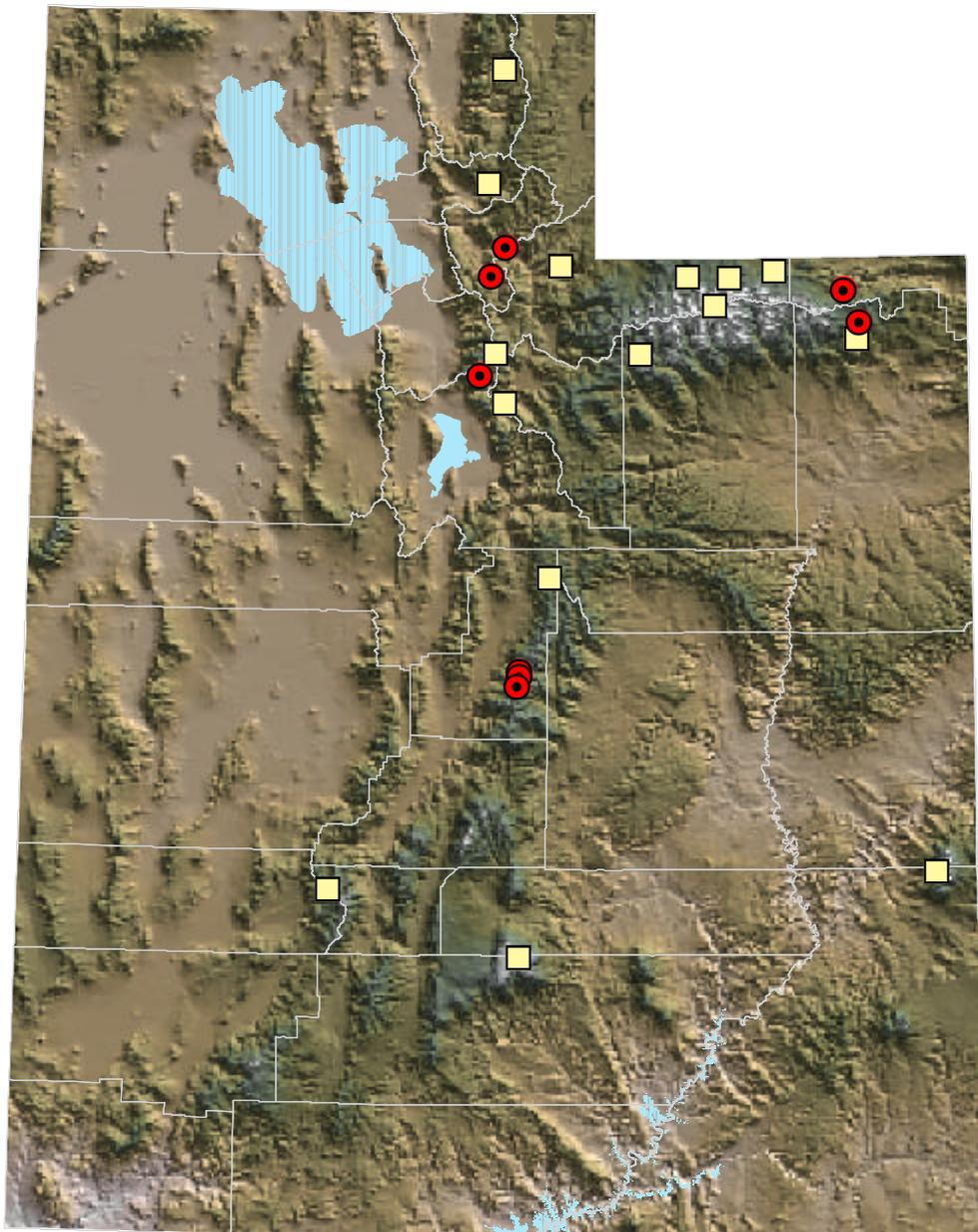


Figure 130. The distribution of records of the wolverine (*Gulo gulo*). Red circles represent sightings since 1983, inclusive, and yellow squares represent records before 1983.

Northern River Otter
Lontra canadensis

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Weasels (Mustelidae)

SUBSPECIES: The two subspecies that are native to Utah are *Lontra canadensis pacifica* and *L. canadensis sonora*. Otters translocated from Alaska and Nevada into the Colorado River drainage in Utah represent the subspecies *L. canadensis pacifica*. Although Durrant (1952) used the name *Lutra canadensis nexa* for the subspecies in Utah, Hall (1981) considered *nexa* to be a synonym of the subspecies *pacifica*.

CONSERVATION STATUS DESIGNATIONS

No conservation status is currently applied by management agencies.

DISTRIBUTION AND ABUNDANCE IN UTAH

This species occurs across northern and eastern Utah. Historically populations occurred in the Raft River Mountains, the Wasatch Mountains, the Uinta Mountains, and in the Colorado River drainage in Uintah County (Fig. 131) (Durrant 1952) and along the Colorado River in Glen Canyon, San Juan County (Gregory 1938, see also Hall 1981). More recently, Bich (1988) sent questionnaires to trappers and Utah Division of Wildlife Resources (UDWR) personnel, compiled sighting records from UDWR files, and conducted searches for otters and their sign along several rivers in northern Utah; these sources resulted in 58 records of otters between 1978 and 1988 along 18 rivers and creeks in 7 river drainages throughout the state. Boschen (1989) located two pairs of otters along the Colorado River in Grand County and had two reports of tracks in Canyonlands National Park, two reports of sightings (4 and 3 individuals) along the Colorado River in Grand County, and a report of sign (scat) along the Colorado River in Grand County.

Although descriptions of the habitats utilized by this species in Utah are lacking, the 1978-1988 reports of the species in at least 18 rivers and streams in much of the state (northern, central, and eastern Utah) (Bich 1988) suggest that a variety of riverine or riparian habitats, from montane forests to desert canyons, are used by this species in Utah.

This species is generally uncommon in Utah. The natural populations were believed to be declining, which was part of the justification for the reintroduction of 67 otters into the Green River from 1989 to 1992. The threat that led to the historical decline of this species in Utah probably was trapping both for this species and for beavers, since capture of otters incidental to beaver trapping has been significant in the decline of this species elsewhere. The Utah Division of Wildlife Resources has placed restrictions on trapping equipment and techniques with the Green River corridor to protect otters from incidental capture. Current threats may include stream alterations, water diversion, and water management activities affecting fish populations.

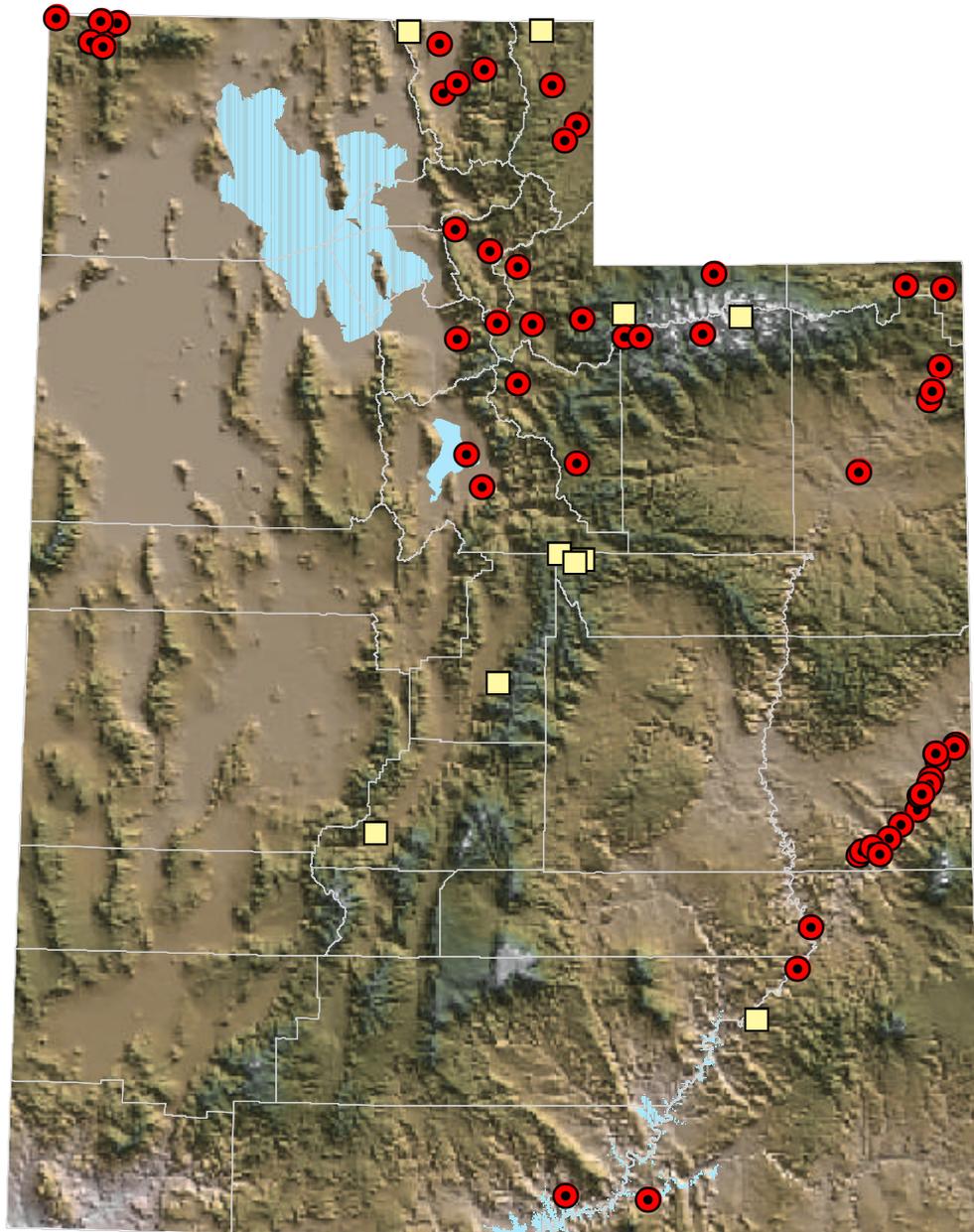


Figure 131. The distribution of records of the northern river otter (*Lontra canadensis*). Red circles represent records since 1983, inclusive, and yellow squares represent records before 1983.

Canada Lynx
Lynx canadensis

TAXONOMY AND NOMENCLATURE

CLASS: Mammals (Mammalia)

FAMILY: Cats (Felidae)

SUBSPECIES: Within the current taxonomic arrangement, no subspecies are recognized.

OTHER NAMES: This species has been called *Lynx canadensis* (e.g., Durrant 1952), *Felis canadensis*, *Felis lynx* (e.g., Tumlison 1987), and *Lynx lynx*.

CONSERVATION STATUS DESIGNATIONS

USFWS has designated U. S. populations of the Canada lynx as threatened (65 Federal Register 16051-16086) under the Endangered Species Act. This species is included on the UDWR Sensitive Species List (UDWR 2003).

DISTRIBUTION AND ABUNDANCE IN UTAH

Historically this species occurred in the northern and central mountains (Fig. 132), although few unequivocal data are available to substantiate the historical range. Durrant (1952) knew of only 2 specimens (from Wasatch and probably Sanpete counties) but mapped the hypothetical range to include the Uinta Mountains, the Wasatch Mountains, and the mountains of the central part of the state south to northwestern Kane County. McKay (1991a) reported 2 additional specimens, one from Summit County (1972?) and the other from the Uinta Mountains (county unknown, 1972). Many more records of sightings are available, but because the Canada lynx can be confused with the bobcat (*L. rufus*), sightings that are not supported by physical evidence (e.g., specimens or photos) must be viewed skeptically. McKay (1991a) evaluated these and considered records from Uintah, Summit, Daggett, Duchesne, Wasatch, and Sanpete (or Emery) counties to be of probable validity.

Whether any populations persist is unknown. The most recent confirmed (i.e., specimen) records are from 1972 (two, one of which was reported as "1972?"). Unsubstantiated sightings were reported in the years to follow (McKay 1991a), and most evidence surfacing during recent years has proved to originate from escapees from fur farms. However, a hair sample collected during 2001 suggests the possible presence of the species in central Utah; whether a population persists or whether a wandering individual was detected has not been determined. If this species is extant in Utah, its abundance is certainly very low. Anthropogenic alteration of habitat (timber harvest, clearing, road construction) and persecution could threaten an extant population.

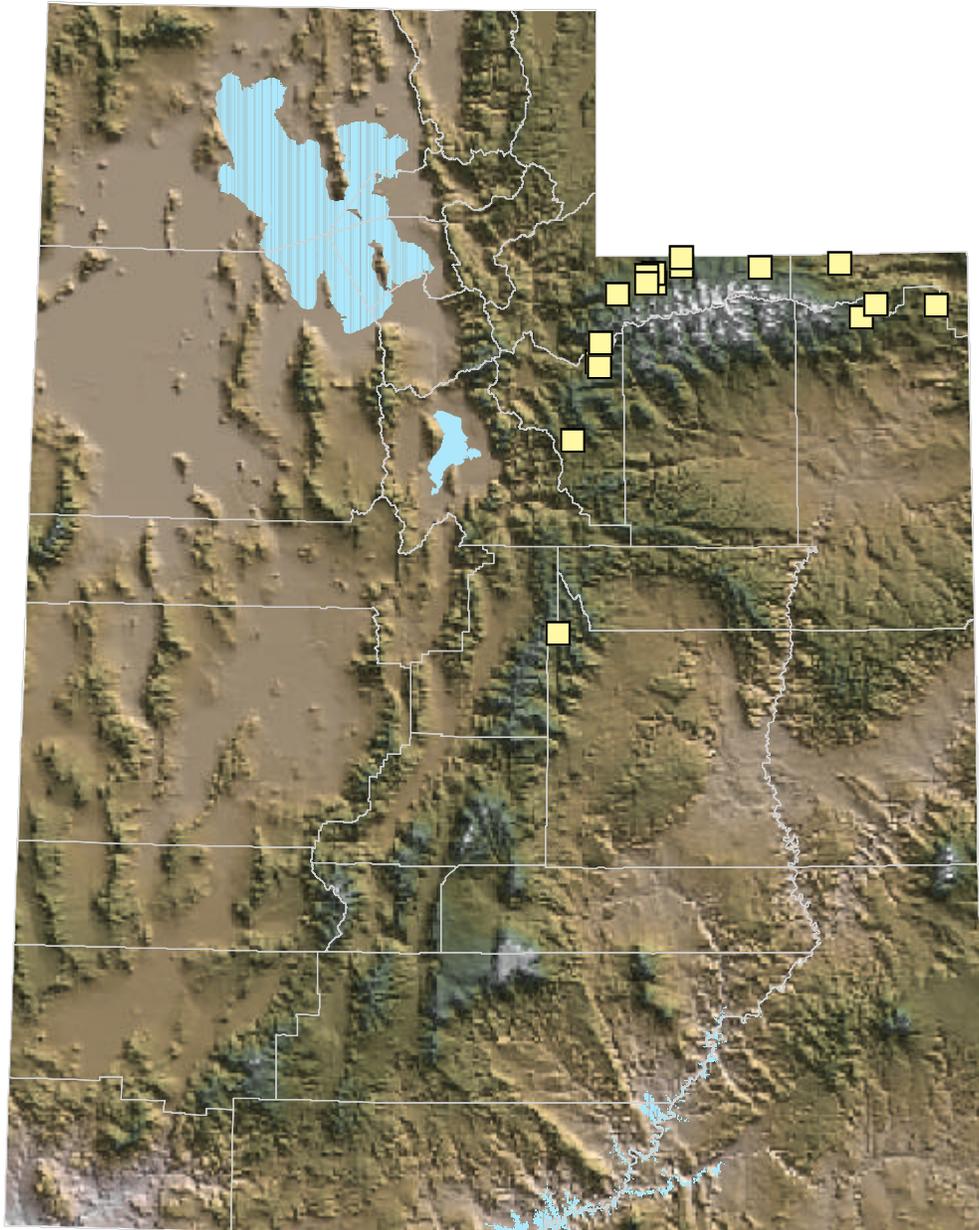


Figure 132. The distribution of historical records of the Canada lynx (*Lynx canadensis*).

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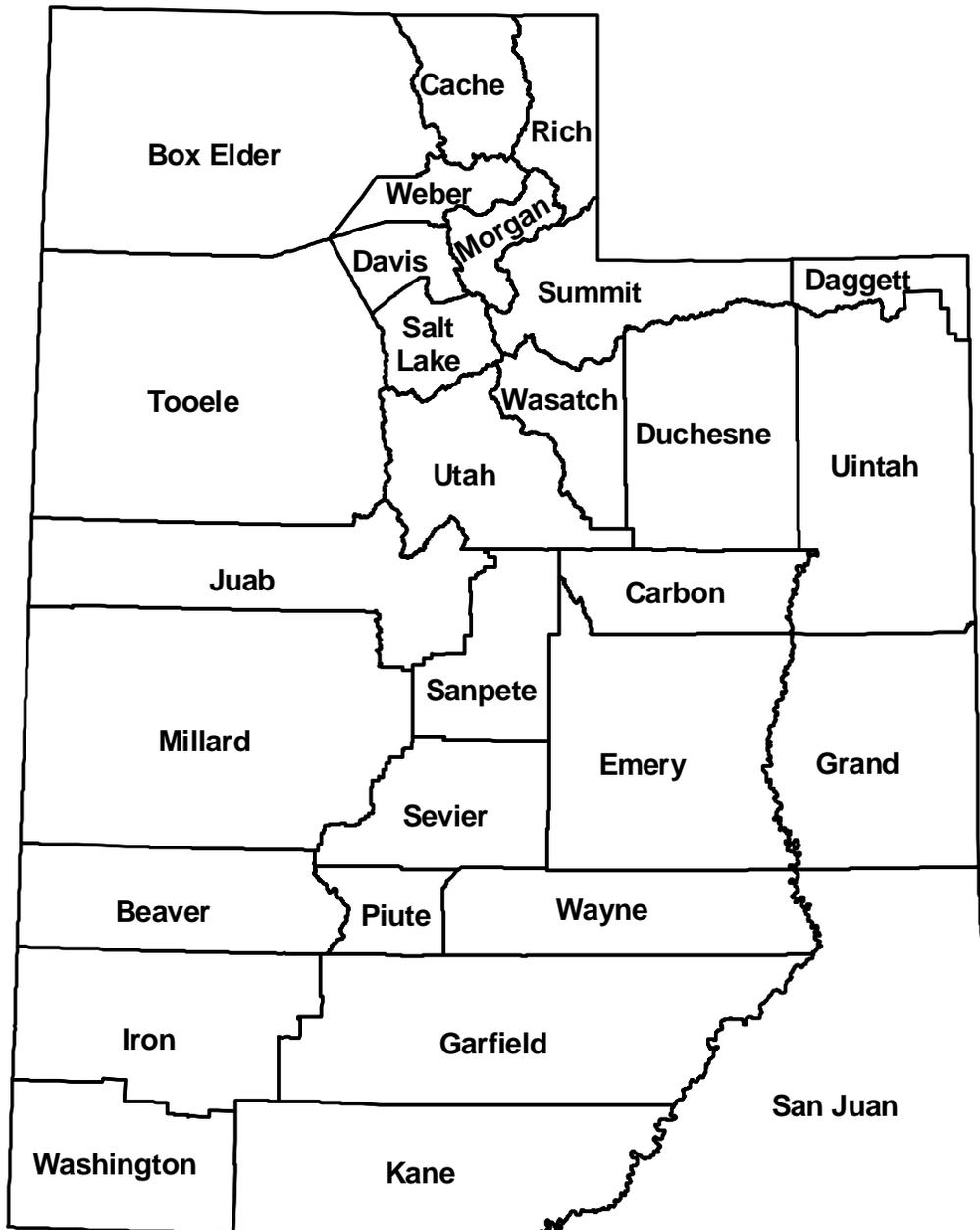
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Appendix 1

Many species accounts contain references to Utah counties. Below is a map of Utah showing the location of the 29 counties.



Appendix 2

Vertebrates of Utah

Following is a list of species of vertebrates that have been reported in Utah. This list includes native resident species as well as species that have been extirpated from the state since the early 1800s, introduced species, and species that occur irregularly (i.e., migrants, species occurring outside normal breeding range, etc.).

OSTEICHTHYS—BONY FISHES

Cottidae

- Cottus bairdi* — mottled sculpin
- Cottus beldingi* — Paiute sculpin
- Cottus echinatus* — Utah lake sculpin
- Cottus extensus* — Bear Lake sculpin

Clupeidae

- Dorosoma cepedianum* — gizzard shad
- Dorosoma petenense* — threadfin shad

Salmonidae

- Oncorhynchus nerka* — sockeye salmon
- Oncorhynchus clarki* — cutthroat trout
- Oncorhynchus mykiss* — rainbow trout
- Prosopium abyssicola* — Bear Lake whitefish
- Prosopium gemmifer* — Bonneville cisco
- Prosopium spilonotus* — Bonneville whitefish
- Prosopium williamsoni* — mountain whitefish
- Salmo trutta* — brown trout
- Salvelinus fontinalis* — brook trout
- Salvelinus namaycush* — lake trout
- Thymallus arcticus* — Arctic grayling

Esocidae

- Esox lucius* — northern pike

Cyprinidae

- Carassius auratus* — goldfish
- Cyprinus carpio* — common carp
- Gila atraria* — Utah chub
- Gila copei* — leatherside chub
- Gila cypha* — humpback chub
- Gila elegans* — bonytail
- Gila robusta* — roundtail chub
- Gila seminuda* — Virgin River chub

Hybognathus hankinsoni — brassy minnow
Hybognathus placitus — plains minnow
Iotichthys phlegethontis — least chub
Lepidomeda mollispinis — Virgin spinedace
Notemigonus crysoleucas — golden shiner
Notropis atherinoides — emerald shiner
Notropis hudsonius — spottail shiner
Notropis stramineus — sand shiner
Pimephales promelas — fathead minnow
Plagiopterus argentissimus — woundfin
Ptychocheilus lucius — Colorado pikeminnow
Rhinichthys cataractae — longnose dace
Rhinichthys osculus — speckled dace
Richardsonius balteatus — redbelt shiner
Semotilus atromaculatus — creek chub
Cyprinella lutrensis — red shiner

Catostomidae

Catostomus ardens — Utah sucker
Catostomus clarki — desert sucker
Catostomus commersoni — white sucker
Catostomus discobolus — bluehead sucker
Catostomus latipinnis — flannelmouth sucker
Catostomus platyrhynchus — mountain sucker
Chasmistes liorus — June sucker
Xyrauchen texanus — razorback sucker

Ictaluridae

Ictalurus punctatus — channel catfish
Ameiurus melas — black bullhead
Ameiurus natalis — yellow bullhead

Percopsidae

Percopsis omiscomaycus — trout-perch

Cyprinodontidae

Fundulus sciadicus — plains topminnow
Fundulus zebrinus — plains killifish
Lucania parva — rainwater killifish

Poeciliidae

Gambusia affinis — western mosquitofish

Gasterosteidae

Culaea inconstans — brook stickleback

Percichthyidae

Morone chrysops — white bass

Morone saxatilis — striped bass

Centrarchidae

Archoplites interruptus — Sacramento perch

Lepomis cyanellus — green sunfish

Lepomis macrochirus — bluegill

Micropterus dolomieu — smallmouth bass

Micropterus salmoides — largemouth bass

Pomoxis annularis — white crappie

Pomoxis nigromaculatus — black crappie

Percidae

Etheostoma exile — Iowa darter

Etheostoma nigrum — Johnny darter

Perca flavescens — yellow perch

Percina caprodes — logperch

Stizostedion vitreum — walleye

Cichlidae

Cichlasoma managuense — jaguar guapote

AMPHIBIA—AMPHIBIANS**Ambystomidae**

Ambystoma tigrinum — tiger salamander

Bufonidae

Bufo boreas — western toad

Bufo cognatus—Great Plains toad

Bufo microscaphus—Arizona toad

Bufo punctatus — red-spotted toad

Bufo woodhousii — Woodhouse's toad

Hylidae

Hyla arenicolor— canyon treefrog

Pseudacris triseriata — western chorus frog

Pseudacris regilla — Pacific treefrog

Pelobatidae

Spea bombifrons — plains spadefoot

Spea intermontana — Great Basin spadefoot

Spea multiplicata — Mexican spadefoot

Ranidae

- Rana catesbeiana* — American bullfrog
Rana clamitans — green frog
Rana onca — relict leopard frog
Rana pipiens — northern leopard frog
Rana luteiventris — Columbia spotted frog

REPTILIA—REPTILES**Chelydridae**

- Chelydra serpentina* — snapping turtle

Emydidae

- Chrysemys picta* — painted turtle

Testudinidae

- Gopherus agassizii* — desert tortoise

Trionychidae

- Apalone spinifera* — spiny softshell

Phrynosomatidae

- Callisaurus draconoides* — zebra-tailed lizard
Holbrookia maculata — common lesser earless lizard
Phrynosoma platyrhinos — desert horned lizard
Phrynosoma hernandesi — greater short-horned lizard
Sceloporus graciosus — common sagebrush lizard
Sceloporus magister — desert spiny lizard
Sceloporus occidentalis — western fence lizard
Sceloporus undulatus — eastern fence lizard
Urosaurus ornatus — ornate tree lizard
Uta stansburiana — common side-blotched lizard

Crotaphytidae

- Crotaphytus bicinctores* — Great Basin collared lizard
Crotaphytus collaris — eastern collared lizard
Gambelia wislizenii — long-nosed leopard lizard

Iguanidae

- Dipsosaurus dorsalis* — desert iguana
Sauromalus ater — common chuckwalla

Gekkonidae

- Coleonyx variegatus* — western banded gecko

Teiidae

- Aspidoscelis tigris* — tiger whiptail
Aspidoscelis velox — plateau striped whiptail

Scincidae

- Eumeces multivirgatus* — many-lined skink
Eumeces skiltonianus — western skink

Xantusiidae

- Xantusia vigilis* — desert night lizard

Helodermatidae

- Heloderma suspectum* — Gila monster

Leptotyphlopidae

- Leptotyphlops humilis* — western threadsnake

Boidae

- Charina bottae* — rubber boa

Colubridae

- Arizona elegans* — glossy snake
Phyllorhynchus decurtatus — spotted leaf-nosed snake
Salvadora hexalepis — western patch-nosed snake
Coluber constrictor — eastern racer
Masticophis flagellum — coachwhip
Masticophis taeniatus — striped whipsnake
Diadophis punctatus — ring-necked snake
Hypsiglena torquata — nightsnake
Elaphe guttata — cornsnake
Lampropeltis getula — common kingsnake
Lampropeltis pyromelana — Sonoran mountain kingsnake
Lampropeltis triangulum — milksnake
Pituophis catenifer — gophersnake
Rhinocheilus lecontei — long-nosed snake
Sonora semiannulata — groundsnake
Tantilla hobartsmithi — Smith's black-headed snake
Thamnophis cyrtopsis — black-necked gartersnake
Thamnophis elegans — terrestrial gartersnake
Thamnophis sirtalis — common gartersnake
Trimorphodon biscutatus — western lyresnake
Opheodrys vernalis — smooth greensnake

Viperidae

- Crotalus cerastes* — sidewinder
- Crotalus mitchellii* — speckled rattlesnake
- Crotalus scutulatus* — Mojave rattlesnake
- Crotalus viridis* — western rattlesnake

AVES—BIRDS

Gaviidae

- Gavia stellata* — red-throated loon
- Gavia immer* — common loon
- Gavia adamsii* — yellow-billed loon
- Gavia pacifica* — Pacific loon

Podicipedidae

- Podilymbus podiceps* — pied-billed grebe
- Podiceps auritus* — horned grebe
- Podiceps grisegena* — red-necked grebe
- Podiceps nigricollis* — eared grebe
- Aechmophorus occidentalis* — western grebe
- Aechmophorus clarkii* — Clark's grebe

Pelecanidae

- Pelecanus erythrorhynchos* — American white pelican
- Pelecanus occidentalis* — brown pelican

Phalacrocoracidae

- Phalacrocorax auritus* — double-crested cormorant
- Fregata magnificens* — magnificent frigatebird

Ardeidae

- Botaurus lentiginosus* — American bittern
- Ixobrychus exilis* — least bittern
- Ardea herodias* — great blue heron
- Ardea alba* — great egret
- Egretta thula* — snowy egret
- Egretta caerulea* — little blue heron
- Egretta tricolor* — tricolored heron
- Egretta rufescens* — reddish egret
- Bubulcus ibis* — cattle egret
- Butorides virescens* — green heron
- Nycticorax nycticorax* — black-crowned night-heron
- Nyctanassa violacea* — yellow-crowned night-heron

Threskiornithidae

- Plegadis chihi* — white-faced ibis
- Ajaia ajaja* — roseate spoonbill

Ciconiidae

Mycteria americana — wood stork

Cathartidae

Cathartes aura — turkey vulture

Gymnogyps californianus — California condor

Phoenicopteridae

Phoenicopterus ruber — greater flamingo

Anatidae

Dendrocygna bicolor — fulvous whistling-duck

Cygnus columbianus — tundra swan

Cygnus buccinator — trumpeter swan

Anser albifrons — greater white-fronted goose

Chen caerulescens — snow goose

Chen rossii — Ross's goose

Branta bernicla — brant

Branta canadensis — Canada goose

Aix sponsa — wood duck

Anas crecca — green-winged teal

Anas rubripes — American black duck

Anas platyrhynchos — mallard

Anas acuta — northern pintail

Anas discors — blue-winged teal

Anas cyanoptera — cinnamon teal

Anas clypeata — northern shoveler

Anas querquedula — garganey

Anas strepera — gadwall

Anas penelope — Eurasian wigeon

Anas americana — American wigeon

Aythya valisineria — canvasback

Aythya americana — redhead

Aythya collaris — ring-necked duck

Aythya marila — greater scaup

Aythya affinis — lesser scaup

Histrionicus histrionicus — harlequin duck

Clangula hyemalis — long-tailed duck

Melanitta nigra — black scoter

Melanitta perspicillata — surf scoter

Melanitta fusca — white-winged scoter

Bucephala clangula — common goldeneye

Bucephala islandica — Barrow's goldeneye

Bucephala albeola — bufflehead

Lophodytes cucullatus — hooded merganser

Mergus merganser — common merganser
Mergus serrator — red-breasted merganser
Oxyura jamaicensis — ruddy duck

Accipitridae

Pandion haliaetus — osprey
Elanus leucurus — white-tailed kite
Haliaeetus leucocephalus — bald eagle
Circus cyaneus — northern harrier
Accipiter striatus — sharp-shinned hawk
Accipiter cooperii — Cooper's hawk
Accipiter gentilis — northern goshawk
Buteogallus anthracinus — common black-hawk
Buteo lineatus — red-shouldered hawk
Buteo platypterus — broad-winged hawk
Buteo swainsoni — Swainson's hawk
Buteo albonotatus — zone-tailed hawk
Buteo jamaicensis — red-tailed hawk
Buteo regalis — ferruginous hawk
Buteo lagopus — rough-legged hawk
Aquila chrysaetos — golden eagle

Falconidae

Falco sparverius — American kestrel
Falco columbarius — merlin
Falco peregrinus — peregrine falcon
Falco rusticolus — gyrfalcon
Falco mexicanus — prairie falcon

Phasianidae

Perdix perdix — gray partridge
Alectoris chukar — chukar
Phasianus colchicus — ring-necked pheasant
Dendragapus obscurus — blue grouse
Lagopus leucurus — white-tailed ptarmigan
Bonasa umbellus — ruffed grouse
Centrocercus urophasianus — greater sage-grouse
Centrocercus minimus — Gunnison sage-grouse
Tympanuchus phasianellus — sharp-tailed grouse
Meleagris gallopavo — wild turkey

Odontophoridae

Callipepla squamata — scaled quail
Callipepla gambelii — Gambel's quail
Callipepla californica — California quail

Rallidae

- Rallus limicola* — Virginia rail
Porzana carolina — sora
Porphyryla martinica — purple gallinule
Gallinula chloropus — common moorhen
Fulica americana — American coot

Gruidae

- Grus canadensis* — sandhill crane
Grus americana — whooping crane

Charadriidae

- Pluvialis squatarola* — black-bellied plover
Pluvialis dominica — American golden-plover
Charadrius alexandrinus — snowy plover
Charadrius semipalmatus — semipalmated plover
Charadrius vociferus — killdeer
Charadrius montanus — mountain plover

Recurvirostridae

- Himantopus mexicanus* — black-necked stilt
Recurvirostra americana — American avocet

Scolopacidae

- Tringa melanoleuca* — greater yellowlegs
Tringa flavipes — lesser yellowlegs
Tringa solitaria — solitary sandpiper
Catoptrophorus semipalmatus — willet
Heteroscelus incanus — wandering tattler
Actitis macularia — spotted sandpiper
Bartramia longicauda — upland sandpiper
Numenius phaeopus — whimbrel
Numenius americanus — long-billed curlew
Limosa haemastica — Hudsonian godwit
Limosa fedoa — marbled godwit
Arenaria interpres — ruddy turnstone
Calidris canutus — red knot
Calidris alba — sanderling
Calidris pusilla — semipalmated sandpiper
Calidris mauri — western sandpiper
Calidris minutilla — least sandpiper
Calidris fuscicollis — white-rumped sandpiper
Calidris bairdii — Baird's sandpiper
Calidris melanotos — pectoral sandpiper
Calidris alpina — dunlin
Calidris ferruginea — curlew sandpiper

Calidris himantopus — stilt sandpiper
Tryngites subruficollis — buff-breasted sandpiper
Philomachus pugnax — ruff
Limnodromus griseus — short-billed dowitcher
Limnodromus scolopaceus — long-billed dowitcher
Gallinago gallinago — Wilson's snipe
Scolopax minor — American woodcock
Phalaropus tricolor — Wilson's phalarope
Phalaropus lobatus — red-necked phalarope
Phalaropus fulicaria — red phalarope

Laridae

Stercorarius pomarinus — pomarine jaeger
Stercorarius parasiticus — parasitic jaeger
Stercorarius longicaudus — long-tailed jaeger
Larus atricilla — laughing gull
Larus pipixcan — Franklin's gull
Larus minutus — little gull
Larus philadelphia — Bonaparte's gull
Larus heermanni — Heermann's gull
Larus canus — mew gull
Larus delawarensis — ring-billed gull
Larus californicus — California gull
Larus argentatus — herring gull
Larus thayeri — Thayer's gull
Larus fuscus — lesser black-backed gull
Larus livens — yellow-footed gull
Larus glaucescens — glaucous-winged gull
Larus hyperboreus — glaucous gull
Rissa tridactyla — black-legged kittiwake
Xema sabini — Sabine's gull
Sterna caspia — Caspian tern
Sterna hirundo — common tern
Sterna forsteri — Forster's tern
Sterna antillarum — least tern
Chlidonias niger — black tern

Alcidae

Synthliboramphus antiquus — ancient murrelet

Columbidae

Columba livia — rock dove
Columba fasciata — band-tailed pigeon
Streptopelia decaocto — Eurasian collared-dove
Streptopelia chinensis — spotted dove
Zenaida asiatica — white-winged dove

Zenaida macroura — mourning dove
Columbina inca — Inca dove
Columbina passerina — common ground-dove
Columbina talpacoti — ruddy ground-dove

Cuculidae

Coccyzus erythrophthalmus — black-billed cuckoo
Coccyzus americanus — yellow-billed cuckoo
Geococcyx californianus — greater roadrunner

Tytonidae

Tyto alba — barn owl

Strigidae

Otus flammeolus — flammulated owl
Otus kennicottii — western screech-owl
Bubo virginianus — great horned owl
Nyctea scandiaca — snowy owl
Surnia ulula — northern hawk owl
Glaucidium gnoma — northern pygmy-owl
Micrathene whitneyi—elf owl
Athene cunicularia — burrowing owl
Strix occidentalis — spotted owl
Strix nebulosa — great gray owl
Asio otus — long-eared owl
Asio flammeus — short-eared owl
Aegolius funereus — boreal owl
Aegolius acadicus — northern saw-whet owl

Caprimulgidae

Chordeiles acutipennis — lesser nighthawk
Chordeiles minor — common nighthawk
Phalaenoptilus nuttallii — common poorwill
Caprimulgus vociferus — whip-poor-will

Apodidae

Cypseloides niger — black swift
Chaetura pelagica — chimney swift
Chaetura vauxi — Vaux's swift
Aeronautes saxatalis — white-throated swift

Trochilidae

Cyananthus latirostris — broad-billed hummingbird
Lampornis clemenciae — blue-throated hummingbird
Eugenes fulgens — magnificent hummingbird
Archilochus alexandri — black-chinned hummingbird

Calypte anna — Anna's hummingbird
Calypte costae — Costa's hummingbird
Stellula calliope — calliope hummingbird
Selasphorus platycercus — broad-tailed hummingbird
Selasphorus rufus — rufous hummingbird

Alcidinidae

Ceryle alcyon — belted kingfisher

Picidae

Melanerpes lewis — Lewis's woodpecker
Melanerpes erythrocephalus — red-headed woodpecker
Melanerpes formicivorus — acorn woodpecker
Sphyrapicus ruber — red-breasted sapsucker
Sphyrapicus thyroideus — Williamson's sapsucker
Sphyrapicus varius — yellow-bellied sapsucker
Sphyrapicus nuchalis — red-naped sapsucker
Picoides scalaris — ladder-backed woodpecker
Picoides pubescens — downy woodpecker
Picoides villosus — hairy woodpecker
Picoides tridactylus — three-toed woodpecker
Colaptes auratus — northern flicker
Colaptes chrysoides — gilded flicker
Dryocopus pileatus — pileated woodpecker

Tyrannidae

Contopus cooperi — olive-sided flycatcher
Contopus sordidulus — western wood-pewee
Empidonax traillii — willow flycatcher
Empidonax minimus — least flycatcher
Empidonax hammondi — Hammond's flycatcher
Empidonax oberholseri — dusky flycatcher
Empidonax wrightii — gray flycatcher
Empidonax difficilis — Pacific-slope flycatcher
Empidonax occidentalis — Cordilleran flycatcher
Sayornis nigricans — black phoebe
Sayornis phoebe — eastern phoebe
Sayornis saya — Say's phoebe
Pyrocephalus rubinus — vermilion flycatcher
Myiarchus cinerascens — ash-throated flycatcher
Myiarchus crinitus — great crested flycatcher
Myiarchus tyrannulus — brown-crested flycatcher
Tyrannus vociferans — Cassin's kingbird
Tyrannus verticalis — western kingbird
Tyrannus tyrannus — eastern kingbird
Tyrannus forficatus — scissor-tailed flycatcher

Laniidae

- Lanius excubitor* — northern shrike
Lanius ludovicianus — loggerhead shrike

Vireonidae

- Vireo griseus* — white-eyed vireo
Vireo bellii — Bell's vireo
Vireo vicinior — gray vireo
Vireo flavifrons — yellow-throated vireo
Vireo gilvus — warbling vireo
Vireo philadelphicus — Philadelphia vireo
Vireo olivaceus — red-eyed vireo
Vireo plumbeus — plumbeous vireo
Vireo cassinii — Cassin's vireo

Corvidae

- Perisoreus canadensis* — gray jay
Cyanocitta stelleri — Steller's jay
Cyanocitta cristata — blue jay
Aphelocoma californica — western scrub-jay
Gymnorhinus cyanocephalus — pinyon jay
Nucifraga columbiana — Clark's nutcracker
Pica hudsonia — black-billed magpie
Corvus brachyrhynchos — American crow
Corvus corax — common raven

Alaudidae

- Eremophila alpestris* — horned lark

Hirundinidae

- Progne subis* — purple martin
Tachycineta bicolor — tree swallow
Tachycineta thalassina — violet-green swallow
Stelgidopteryx serripennis — northern rough-winged swallow
Riparia riparia — bank swallow
Petrochelidon pyrrhonota — cliff swallow
Hirundo rustica — barn swallow

Paridae

- Poecile atricapilla* — black-capped chickadee
Poecile gambeli — mountain chickadee
Baeolophus ridgwayi — juniper titmouse

Remizidae

Auriparus flaviceps — verdin

Aegithalidae

Psaltriparus minimus — bushtit

Sittidae

Sitta canadensis — red-breasted nuthatch

Sitta carolinensis — white-breasted nuthatch

Sitta pygmaea — pygmy nuthatch

Certhiidae

Certhia americana — brown creeper

Troglodytidae

Campylorhynchus brunneicapillus — cactus wren

Salpinctes obsoletus — rock wren

Catherpes mexicanus — canyon wren

Thryomanes bewickii — Bewick's wren

Troglodytes aedon — house wren

Troglodytes troglodytes — winter wren

Cistothorus palustris — marsh wren

Cinclidae

Cinclus mexicanus — American dipper

Regulidae

Regulus satrapa — golden-crowned kinglet

Regulus calendula — ruby-crowned kinglet

Sylviidae

Polioptila caerulea — blue-gray gnatcatcher

Polioptila melanura — black-tailed gnatcatcher

Turdidae

Sialia sialis — eastern bluebird

Sialia mexicana — western bluebird

Sialia currucoides — mountain bluebird

Myadestes townsendi — Townsend's solitaire

Catharus fuscescens — veery

Catharus minimus — gray-cheeked thrush

Catharus ustulatus — Swainson's thrush

Catharus guttatus — hermit thrush

Hylocichla mustelina — wood thrush

Turdus migratorius — American robin

Ixoreus naevius — varied thrush

Mimidae

- Dumetella carolinensis* — gray catbird
- Mimus polyglottos* — northern mockingbird
- Oreoscoptes montanus* — sage thrasher
- Toxostoma rufum* — brown thrasher
- Toxostoma bendirei* — Bendire's thrasher
- Toxostoma crissale* — crissal thrasher
- Toxostoma curvirostre* — curve-billed thrasher
- Toxostoma lecontei* — Le Conte's thrasher

Sturnidae

- Sturnus vulgaris* — European starling

Motacillidae

- Anthus rubescens* — American pipit
- Anthus spragueii* — Sprague's pipit

Bombycillidae

- Bombycilla garrulus* — Bohemian waxwing
- Bombycilla cedrorum* — cedar waxwing

Ptilonotidae

- Phainopepla nitens* — phainopepla

Parulidae

- Vermivora pinus* — blue-winged warbler
- Vermivora chrysoptera* — golden-winged warbler
- Vermivora peregrina* — Tennessee warbler
- Vermivora celata* — orange-crowned warbler
- Vermivora ruficapilla* — Nashville warbler
- Vermivora virginiae* — Virginia's warbler
- Vermivora luciae* — Lucy's warbler
- Parula americana* — northern parula
- Dendroica petechia* — yellow warbler
- Dendroica pensylvanica* — chestnut-sided warbler
- Dendroica magnolia* — magnolia warbler
- Dendroica caerulescens* — black-throated blue warbler
- Dendroica coronata* — yellow-rumped warbler
- Dendroica nigrescens* — black-throated gray warbler
- Dendroica townsendi* — Townsend's warbler
- Dendroica occidentalis* — hermit warbler
- Dendroica virens* — black-throated green warbler
- Dendroica fusca* — blackburnian warbler
- Dendroica dominica* — yellow-throated warbler
- Dendroica graciae* — Grace's warbler

Dendroica discolor—prairie warbler
Dendroica palmarum — palm warbler
Dendroica castanea — bay-breasted warbler
Dendroica striata — blackpoll warbler
Mniotilta varia — black-and-white warbler
Setophaga ruticilla — American redstart
Protonotaria citrea — Prothonotary warbler
Helmitheros vermivorus — worm-eating warbler
Seiurus aurocapillus — ovenbird
Seiurus noveboracensis — northern waterthrush
Seiurus motacilla—Louisiana waterthrush
Oporornis formosus — Kentucky warbler
Oporornis agilis — Connecticut warbler
Oporornis tolmiei — MacGillivray's warbler
Geothlypis trichas — common yellowthroat
Wilsonia citrina — hooded warbler
Wilsonia pusilla — Wilson's warbler
Wilsonia canadensis — Canada warbler
Myioborus pictus — painted redstart
Icteria virens — yellow-breasted chat

Thraupidae

Piranga flava — hepatic tanager
Piranga rubra — summer tanager
Piranga olivacea — scarlet tanager
Piranga ludoviciana — western tanager

Emberizidae

Pipilo chlorurus — green-tailed towhee
Pipilo aberti — Abert's towhee
Pipilo fuscus — canyon towhee
Pipilo maculatus — spotted towhee
Aimophila cassinii — Cassin's sparrow
Aimophila ruficeps — rufous-crowned sparrow
Spizella arborea — American tree sparrow
Spizella passerina — chipping sparrow
Spizella pallida — clay-colored sparrow
Spizella breweri — Brewer's sparrow
Spizella pusilla — field sparrow
Spizella atrogularis — black-chinned sparrow
Pooecetes gramineus — vesper sparrow
Chondestes grammacus — lark sparrow
Amphispiza bilineata — black-throated sparrow
Amphispiza belli — sage sparrow
Calamospiza melanocorys — lark bunting
Passerculus sandwichensis — savannah sparrow

Ammodramus bairdii — Baird's sparrow
Ammodramus savannarum — grasshopper sparrow
Ammodramus leconteii — Le Conte's sparrow
Passerella iliaca — fox sparrow
Melospiza melodia — song sparrow
Melospiza lincolni — Lincoln's sparrow
Melospiza georgiana — swamp sparrow
Zonotrichia albicollis — white-throated sparrow
Zonotrichia atricapilla — golden-crowned sparrow
Zonotrichia leucophrys — white-crowned sparrow
Zonotrichia querula — Harris's sparrow
Junco hyemalis — dark-eyed junco
Calcarius mccownii — McCown's longspur
Calcarius lapponicus — Lapland longspur
Calcarius ornatus — chestnut-collared longspur
Plectrophenax nivalis — snow bunting

Cardinalidae

Cardinalis cardinalis — northern cardinal
Pheucticus ludovicianus — rose-breasted grosbeak
Pheucticus melanocephalus — black-headed grosbeak
Guiraca caerulea — blue grosbeak
Passerina amoena — lazuli bunting
Passerina cyanea — indigo bunting
Spiza americana — dickcissel

Icteridae

Dolichonyx oryzivorus — bobolink
Agelaius phoeniceus — red-winged blackbird
Sturnella neglecta — western meadowlark
Xanthocephalus xanthocephalus — yellow-headed blackbird
Euphagus carolinus — rusty blackbird
Euphagus cyanocephalus — Brewer's blackbird
Quiscalus mexicanus — great-tailed grackle
Quiscalus quiscula — common grackle
Molothrus aeneus — bronzed cowbird
Molothrus ater — brown-headed cowbird
Icterus spurius — orchard oriole
Icterus cucullatus — hooded oriole
Icterus galbula — Baltimore oriole
Icterus parisorum — Scott's oriole
Icterus bullockii — Bullock's oriole

Fringillidae

Fringilla montifringilla — brambling
Leucosticte atrata — black rosy-finch

Leucosticte tephrocotis — gray-crowned rosy-finch
Pinicola enucleator — pine grosbeak
Carpodacus purpureus — purple finch
Carpodacus cassinii — Cassin's finch
Carpodacus mexicanus — house finch
Loxia curvirostra — red crossbill
Loxia leucoptera — white-winged crossbill
Carduelis flammea — common redpoll
Carduelis pinus — pine siskin
Carduelis psaltria — lesser goldfinch
Carduelis lawrencei — Lawrence's goldfinch
Carduelis tristis — American goldfinch
Coccothraustes vespertinus — evening grosbeak

Passeridae

Passer domesticus — house sparrow

MAMMALIA—MAMMALS

Didelphidae

Didelphis virginiana — Virginia opossum

Soricidae

Sorex cinereus — masked shrew
Sorex preblei — Preble's shrew
Sorex vagrans — vagrant shrew
Sorex monticolus — montane shrew
Sorex nanus — dwarf shrew
Sorex palustris — water shrew
Sorex merriami — Merriam's shrew
Notiosorex crawfordi — desert shrew

Vespertilionidae

Myotis lucifugus — little brown myotis
Myotis yumanensis — Yuma myotis
Myotis evotis — long-eared myotis
Myotis thysanodes — fringed myotis
Myotis volans — long-legged myotis
Myotis californicus — California myotis
Myotis ciliolabrum — western small-footed myotis
Lasionycteris noctivagans — silver-haired bat
Pipistrellus hesperus — western pipistrelle
Eptesicus fuscus — big brown bat
Lasiurus cinereus — hoary bat
Lasiurus blossevillii — western red bat
Euderma maculatum — spotted bat
Corynorhinus townsendii — Townsend's big-eared bat

Idionycteris phyllotis — Allen's big-eared bat
Antrozous pallidus — pallid bat

Molossidae

Tadarida brasiliensis — Brazilian free-tailed bat
Nyctinomops macrotis — big free-tailed bat

Ochotonidae

Ochotona princeps — American pika

Leporidae

Sylvilagus nuttallii — mountain cottontail
Sylvilagus audubonii — desert cottontail
Lepus americanus — snowshoe hare
Lepus townsendii — white-tailed jackrabbit
Lepus californicus — black-tailed jackrabbit
Brachylagus idahoensis — pygmy rabbit

Sciuridae

Tamias minimus — least chipmunk
Tamias amoenus — yellow-pine chipmunk
Tamias dorsalis — cliff chipmunk
Tamias umbrinus — Uinta chipmunk
Tamias rufus — Hopi chipmunk
Marmota flaviventris — yellow-bellied marmot
Ammospermophilus leucurus — white-tailed antelope squirrel
Spermophilus armatus — Uinta ground squirrel
Spermophilus beldingi — Belding's ground squirrel
Spermophilus tridecemlineatus — thirteen-lined ground squirrel
Spermophilus pilosoma — spotted ground squirrel
Spermophilus variegatus — rock squirrel
Spermophilus lateralis — golden-mantled ground squirrel
Spermophilus elegans — Wyoming ground squirrel
Spermophilus mollis — Piute ground squirrel
Cynomys leucurus — white-tailed prairie-dog
Cynomys parvidens — Utah prairie-dog
Cynomys gunnisoni — Gunnison's prairie-dog
Sciurus aberti — Abert's squirrel
Tamiasciurus hudsonicus — red squirrel
Glaucomys sabrinus — northern flying squirrel

Geomyidae

Thomomys bottae — Botta's pocket gopher
Thomomys talpoides — northern pocket gopher
Thomomys idahoensis — Idaho pocket gopher

Heteromyidae

- Perognathus fasciatus* — olive-backed pocket mouse
- Perognathus flavescens* — plains pocket mouse
- Perognathus flavus* — silky pocket mouse
- Perognathus longimembris* — little pocket mouse
- Perognathus parvus* — Great Basin pocket mouse
- Microdipodops megacephalus* — dark kangaroo mouse
- Dipodomys ordii* — Ord's kangaroo rat
- Dipodomys microps* — chisel-toothed kangaroo rat
- Dipodomys deserti* — desert kangaroo rat
- Dipodomys merriami* — Merriam's kangaroo rat
- Chaetodipus formosus* — long-tailed pocket mouse
- Chaetodipus intermedius* — rock pocket mouse
- Chaetodipus penicillatus* — desert pocket mouse

Castoridae

- Castor canadensis* — American beaver

Muridae

- Reithrodontomys megalotis* — western harvest mouse
- Peromyscus eremicus* — cactus mouse
- Peromyscus maniculatus* — deer mouse
- Peromyscus crinitus* — canyon mouse
- Peromyscus boylii* — brush mouse
- Peromyscus truei* — pinyon mouse
- Peromyscus nasutus* — northern rock mouse
- Onychomys leucogaster* — northern grasshopper mouse
- Onychomys torridus* — southern grasshopper mouse
- Neotoma albigula* — white-throated woodrat
- Neotoma lepida* — desert woodrat
- Neotoma devia* — Arizona woodrat
- Neotoma stephensi* — Stephens' woodrat
- Neotoma mexicana* — Mexican woodrat
- Neotoma cinerea* — bushy-tailed woodrat
- Clethrionomys gapperi* — southern red-backed vole
- Phenacomys intermedius* — western heather vole
- Microtus pennsylvanicus* — meadow vole
- Microtus montanus* — montane vole
- Microtus longicaudus* — long-tailed vole
- Microtus richardsoni* — water vole
- Microtus mogollonensis* — Mogollon vole
- Lemmiscus curtatus* — sagebrush vole
- Ondatra zibethicus* — muskrat
- Rattus rattus* — black rat
- Rattus norvegicus* — Norway rat
- Mus musculus* — house mouse

Dipodidae

Zapus princeps — western jumping mouse

Erethizontidae

Erethizon dorsatum — North American porcupine

Myocastoridae

Myocastor coypus — nutria

Canidae

Canis latrans — coyote

Canis lupus — gray wolf

Vulpes vulpes — red fox

Vulpes macrotis — kit fox

Urocyon cinereoargenteus — common gray fox

Ursidae

Ursus americanus — black bear

Ursus arctos — grizzly bear

Procyonidae

Bassariscus astutus — ringtail

Procyon lotor — northern raccoon

Mustelidae

Martes americana — American marten

Martes pennanti — fisher

Mustela erminea — ermine

Mustela frenata — long-tailed weasel

Mustela nigripes — black-footed ferret

Mustela vison — American mink

Gulo gulo — wolverine

Taxidea taxus — American badger

Lontra canadensis — northern river otter

Mephitidae

Spilogale gracilis — western spotted skunk

Mephitis mephitis — striped skunk

Felidae

Lynx canadensis — Canada lynx

Lynx rufus — bobcat

Puma concolor — puma

Cervidae

Cervus elaphus — elk

Odocoileus hemionus — mule deer

Odocoileus virginianus — white-tailed deer

Alces alces — moose

Antilocapridae

Antilocapra americana — pronghorn

Bovidae

Bos bison — American bison

Oreamnos americanus — mountain goat

Ovis canadensis — bighorn sheep

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