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The Introduced Fishes, Game Birds, and Game and Fur-Bearing Mammals of Utah

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THE INTRODUCED FISHES, GAME BIRDS, AND GAME AND FUR-BEARING MAMMALS OF UTAH

by
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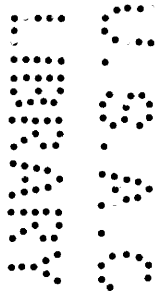

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Acknowledgement

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Introduction

For a number of years wildlife workers have realized the importance of the past histories of introduced species. Emphasis in recent years has been directed toward introductions because of the tremendous hunting and fishing pressures. Yearly increases in numbers of hunters and fishermen have been noted in Utah for the past forty years. It is hoped that this compilation of the histories of the introduced game and fish species of Utah will be of value to sportsmen and wildlife managers alike in planning future introductions.

The material included in this paper was obtained from United States Government reports, Utah Territorial reports, Utah State reports, newspapers and periodicals, personal interviews, and wardens' questionaires.

The United States Government reports used included Bureau of Fisheries reports from 1870 to 1939, and Fish and Wildlife Service reports from 1940 to 1948. Utah Territorial reports covered the period from 1850 to 1895, and Utah State reports covered the time from 1896 until the present.

Newspapers used in the search for material included the Deseret Evening News from 1860 to 1915, the Deseret News Weekly from 1870 to 1900, the Salt Lake Tribune from 1915 to 1948, and the Ogden Standard Examiner from 1930 to 1940. Other periodicals searched were the Journal History of the L.D.S. Church, the Transactions of the Utah Academy of Arts, Sciences, and Letters, and the Utah Educational Review.

An effort was made to personally interview all present and former officials, now living, of the Utah State Fish and

Game Department. Also personally contacted were sportsmen and wildlife federation officers known to have been active in fish and game work. Most of the data necessary to plot the maps accompanying this paper were obtained from questionaires sent to all wardens in the state. Distribution maps have been verified by officials of the Utah State Fish and Game Department.

It is realized that the exact dates and circumstances pertaining to some of the early introductions are somewhat confused. However, an effort has been made to include only material which appears to be substantiated with facts and references. It is possible that in some cases introductions were made prior to those indicated herein as first introductions. It is also possible that in some instances early workers may have used incorrect scientific and common names. In most cases, however, it is felt that the materials and figures included in this paper are reasonably accurate.

Throughout the paper the fish, game birds, and game and fur-bearing mammals will be treated in phylogenetic sequence.

FISHES

Introduction

Early settlers in Utah found cutthroat trout and whitefish numerous in many of the streams and lakes of the territory. These fish furnished an important part of the diets of these early settlers. Year round fishing and unrestricted methods of taking fish greatly reduced the numbers of these native fishes.

At an L.D.S. Church Convention held in Salt Lake City in 1870, a committee on fish propagation was set up. This committee was composed of A. M. Musser, A. P. Rockwood, Brower Petit, and Reuben Mitchell. Two of these men, Musser and Rockwood, were later very active in early introductions of exotic fish into Utah.*

Most early fish introductions were made primarily for the purpose of increasing the food supply of the territory. A program for the propagation and distribution of food fishes was inaugurated by the United States Fish Commission in 1872. Until 1899 the majority of the fish introductions into Utah were a part of this program.

Since 1900, most introductions of exotic fish species have been instituted by the demands of sportsmen. Increased fishing pressures made introductions and the subsequent propagation of the successfully introduced species necessary. At the present time Utah's 12 state hatcheries propagate and distribute chiefly introduced fishes.

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*Deseret Evening News, October 31, 1870.

The scientific names of all fish species have been taken from "A List of Common and Scientific Names of the Better Known Fishes of the United States and Canada", a special publication of the American Fisheries Society, 1948.

AMERICAN SHAD

Scientific Name - Alosa sapidissima.

Common Names - American Shad; Common Shad.

General - The body of the American shad is comparatively deep, with a medium-sized head and a rather large mouth. The color is bluish above and silvery-white on the sides and undersurface. A dark spot behind the operculum is present. This fish reaches a length of 24 to 30 inches, though the average weight is less than 4 pounds.

The shad is native to the Atlantic Coast of North America from Florida to Newfoundland, its center of abundance being from North Carolina to Long Island. In relatively recent years this fish has been successfully introduced into the waters of the Pacific Coast. The shad is an anadromous fish and passes most of its life in the sea, performing annual migrations from the ocean to the rivers to spawn. Very little is known of its life in the ocean. In the spring it ascends rivers to suitable spawning grounds which are always in fresh water.

The shad is very prolific. Single females have been known to yield from 60,000 to 150,000 eggs. Among the fishes of economic importance in the United States only the cod and the chinook salmon exceed the shad in value.[1]

First Introduction - The first shad introduced into Utah were liberated in the Weber River a few days prior to June 28, 1871. This planting consisted of 200 young shad.*

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*Deseret Evening News, June 28, 1871.

No records of results from this planting are known.

Subsequent Introductions - On June 30, 1873, 5,000 shad fry were put in the Jordan River near Great Salt Lake by Livingston Stone, Assistant U. S. Fish Commissioner. These shad came from Albany, New York, and very few were lost in transit.[2] No subsequent information is known of this plant.

In 1887, Territorial Fish Commissioner, A. M. Musser, through Marshall McDonald of the U. S. Fish Commission, received 3,000,000 shad fry, the majority of which were in good condition upon arrival. One million of these were put into the Jordan River and 2,000,000 into Utah Lake.[3] These fish came from Point Lookout on Chesapeake Bay.* It was reported that shortly after these plantings were made, dead shad fry were found by the thousands along the shores of the Jordan River and Utah Lake.** At this time no favorable results had been reported from any of the previous plantings.

On May 22, 1888, Commissioner Musser advertised for persons familiar with the habits and needs of young shad.*** Early in June U. S. Fish Car No. 2 arrived in Salt Lake City with a full load of eggs from the Delaware River. The eggs were hatched on the car, and the resulting 2,000,000 fry were placed in Utah Lake.**** The Deseret Evening News of

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* Deseret Evening News, June 8, 1887.

** Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.

*** Deseret Evening News, May 22, 1888.

****Deseret Evening News, June 12, 1888.

November 30, 1888, carried a notice that Commissioner Musser had received three six-inch shad from M. P. Madsen, a Utah Lake commercial fisherman. On November 10, 1889, 100 young shad were offered for sale on the Salt Lake City market. These were netted from Utah Lake by a Lehi commercial fisherman. These shad averaged one and three-fourths pounds apiece.*

Two million, three-hundred thousand shad fry were received in Utah in 1891 from an eastern U. S. fish station. One-half million of these were planted in the Weber River, 500,000 in the Bear River in Box Elder County, and 1,300,000 in Bear Lake. It was reported that after each of these introductions many thousands of dead fry were observed on the shores of the waters planted. In 1891 Utah Lake fishermen were occasionally taking young shad in their nets.** In this same year nine large tubs of marine plants filled with microscopic life, upon which shad feed, were put three in each of the Bear, Weber, and Jordan Rivers.[3]

In 1892, 1,998,000 fry were placed in the Bear River at Cache Junction.[4] Other than the usual dead fry observed, no results of this planting were reported.

A total of nine known introductions of shad into the state have been made (Table 1).

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* Deseret Evening News, November 10, 1889.

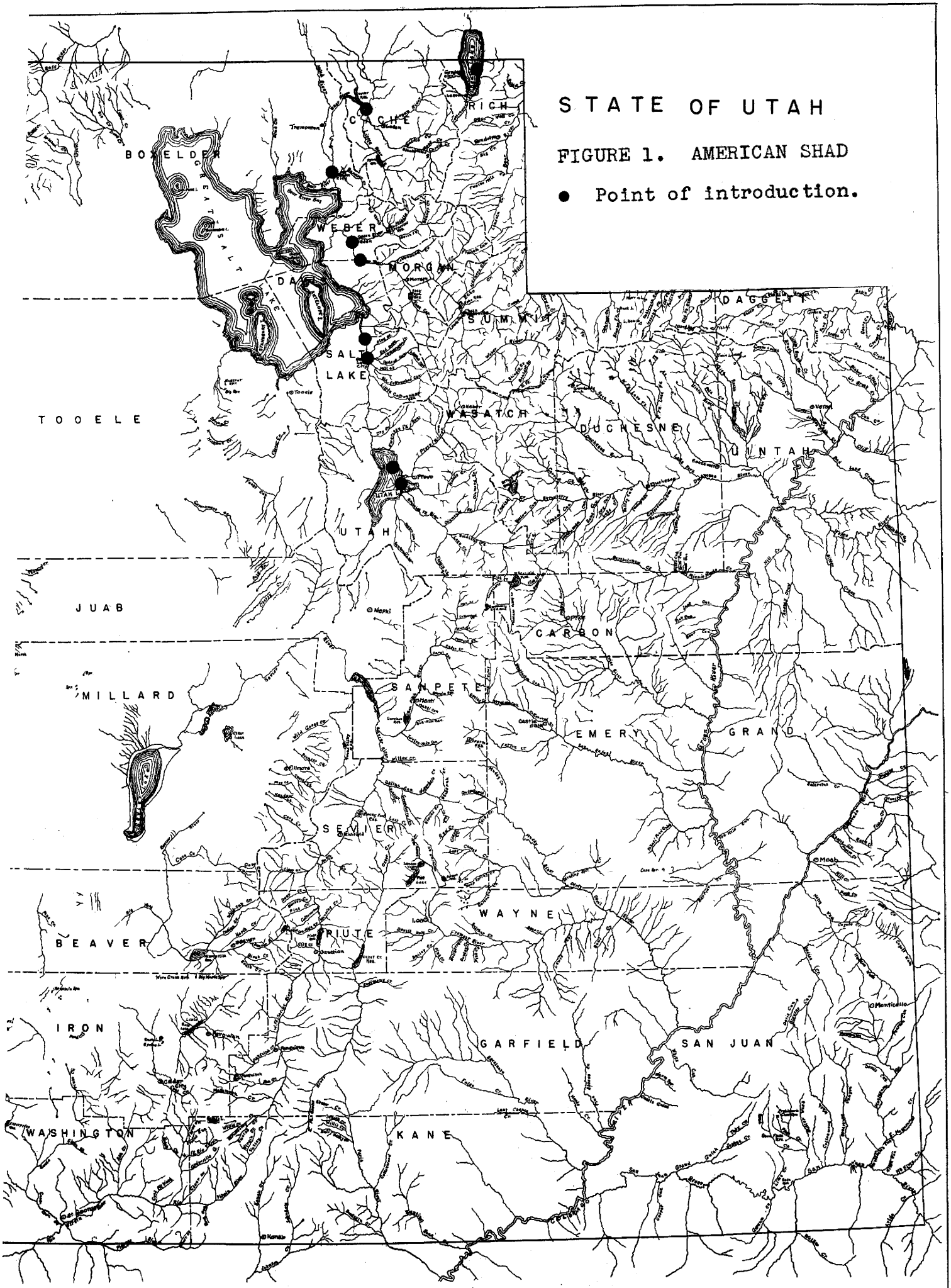
**Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.

Table 1 SHAD FRY INTRODUCTIONS IN UTAH

Year	Locality	County	No. Planted
1871	Weber River	Weber	200
1873	Jordan River	Salt Lake	5,000
1887	Jordan River	Salt Lake	1,000,000
1887	Utah Lake	Utah	2,000,000
1888	Utah Lake	Utah	2,000,000
1891	Weber River	Weber	500,000
1891	Bear River	Box Elder	500,000
1891	Bear Lake	Rich	1,300,000
1892	Bear River	Cache	1,998,000
		Total	9,303,200

Present Status - After about 1894 shad were not reported by commercial fishermen (Figure 1).*

*Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.



STATE OF UTAH

FIGURE 1. AMERICAN SHAD

● Point of introduction.

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CHUM SALMON

Scientific Name - Oncorhynchus keta.

Common Names - Chum Salmon; Dog Salmon.[1]

General - The chum salmon has a robust body and a rather long head. The sides and undersurface are pale, and the dorsal surface is dusky.[2] The absence of any spots is characteristic of this species. Chum salmon mature in from 3 to 5 years, and at maturity they usually weigh from 8 to 12 pounds.[1] During the breeding season the males are almost black on the dorsal surface, and the sides are reddish.

The chum salmon is found along the Pacific Coast from Sacramento northward to Kamchatka and the Bering Straits.[2] They do not migrate any distance from the ocean, but spawn rather close to tide-water. The young chum salmon descend to the ocean shortly after hatching.[1]

As a food fish the chum salmon is the least valuable of all of the members of the genus Oncorhynchus. This inferiority is most noticeable when the fish is canned. Limited numbers of chum salmon are taken by both sport and commercial fishermen.[2]

First Introduction - Available records indicate that the first introduction of chum salmon into Utah was made in 1939, when 94,080 fingerlings were shipped into the state by the U. S. Bureau of Fisheries.[3] These were liberated in Strawberry Reservoir and Fish Lake.* In 1940, another shipment of

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*Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.

120,680 fingerlings from the U. S. Bureau of Fisheries was received in the state. These, also, were put in Strawberry Reservoir and Fish Lake.[4] No records are known of chum salmon being taken from Utah waters.*

Present Status - Chum salmon are not known to be present in Utah today.*

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*Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.

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3. Leach, Glen C., James, M. C., and Douglass, E. J. Propagation and distribution of food fishes. Appendix IV to the Report of the Commissioner of Fisheries for the Fiscal Year 1939. Washington, D. C.: Govt. Printing Office, 1939, p. 597.

4. Leach, Glen C., James, M. C., and Douglass, E. J. Propagation and distribution of food fishes. Bureau of Fisheries Adm. Report No. 42, 1940, p. 603.

SILVER SALMON

Scientific Name - Oncorhynchus kisutch.

Common Names - Silver Salmon; Coho Salmon; White Salmon; Kisutch Salmon; Quisutch Salmon.[1]

General - The silver salmon has a slender, compressed body and a rather short head. The back is bluish-green, and the sides are silvery with dark punctulations. The sides of the head are without the dark coloration characteristic of the chinook salmon.[1] Silver salmon mature in from 2 to 7 years, and at maturity they weigh from 3 to 10 pounds.[2]

Silver salmon are found from the latitude of San Francisco northward along both the Pacific and Asiatic coasts.[1] The planting of young hatchery-reared silver salmon in land-locked lakes will sometimes result in good fishing. Intensively fished waters, in which trout have been depleted, can often be made to produce some good temporary fishing this way. Since the fish thus planted do not mature and spawn as they do in the ocean, continual plantings are necessary to maintain the supply. Introductions of this type have been made into a number of cold-water lakes in the northwestern part of the United States.

Silver salmon, like the king salmon, spawn in the higher reaches of fresh-water streams. Young silvers, in contrast to young king salmon, usually remain in fresh water for one year before going to the sea. Here they compete with young trout for the available food. In the ocean growth is rapid, and they usually mature at the end of their third year of life. At maturity they move into fresh-water streams to

spawn. Silver salmon follow king salmon in spawning, beginning in September and reaching their peak in October.[2]

As a food fish the silver salmon is scarcely equal to the chinook. It is of importance to commercial fishermen and is put on the market as "coho" or "medium red" salmon. It is also of importance to sports fishermen throughout its range.[1]

First Introduction - In the early spring of 1925, in excess of 500,000 silver salmon eggs were shipped into Utah from U. S. Bureau of Fisheries egg-taking stations on the Pacific Coast. These were hatched at the Springville Hatchery and the resulting fry planted in Strawberry Reservoir and Fish Lake (Figure 2). This introduction was instituted by State Fish and Game Commissioner, David H. Madsen.[3]

Subsequent Introductions - Between 1925 and 1940, millions of silver salmon eggs from Pacific Coast egg-taking stations were shipped into Utah. These were hatched at State Fish and Game Department Hatcheries, and the resulting fry planted in public waters (Table 2).

Table 2 SILVER SALMON FRY INTRODUCTIONS IN UTAH*

Year	Locality	County	Number
1925	Strawberry Res.	Wasatch	250,000
1925	Fish Lake	Sevier	250,000
1926	Logan River	Cache	13,000
1926	Blacksmith Fork	Cache	13,000
1926	Bear Lake	Rich	90,000
1927	Minersville Res.	Beaver	10,000
1927	Puffer Lake	Beaver	10,000
1927	Panguitch Lake	Garfield	30,000
1927	Navejo Lake	Kane	4,375
1927	Fish Lake	Sevier	50,000
1927	Utah Lake	Utah	325,000
1927	Strawberry Res.	Wasatch	200,000
1928	Bear Lake	Rich	400,000
1928	Scofield Res.	Carbon	250,000
1928	Strawberry Res.	Wasatch	257,000
1928	Panguitch Lake	Garfield	40,000
1928	Navajo Lake	Kane	40,000
1928	Fish Lake	Sevier	42,800
1929	Fish Lake	Sevier	160,000
1929	Nebo Res.	Juab	200,000
1929	Strawberry Res.	Wasatch	285,000
1930	Strawberry Res.	Wasatch	75,000
1931	Bear Lake	Rich	200,000
1931	Fish Lake	Sevier	300,000
1931	Strawberry Res.	Wasatch	375,000
1932	Strawberry Res.	Wasatch	85,000
1932	Fish Lake	Sevier	100,000
1934	Scofield Res.	Carbon	87,000
1934	Fish Lake	Sevier	100,000
1938	Puffer Lake	Beaver	8,500
1938	Unknown		306,600
1938	Unknown		38,400
1938	Scofield Res.	Carbon	30,000
1938	Strawberry Res.	Wasatch	107,840
1939	Minersville Res.	Beaver	60,000
1939	Puffer Lake	Beaver	62,000
1939	Scofield Res.	Carbon	100,000
1939	Fish Lake	Sevier	100,000
1939	Strawberry Res.	Wasatch	100,000
1939	Grandaddy Lake	Duchesne	50,000
1939	Mirror Lake	Summit	50,000
1939	Echo Res.	Summit	56,000
1939	Strawberry Res.	Wasatch	150,000
		Total	5,461,515

*Data taken from Biennial Reports of the Utah State Fish and Game Dept.

A 1927 report indicated that fishermen at Strawberry Reservoir and Fish Lake were occasionally taking silver

salmon.[3] From this time until about 1935, these two bodies of water furnished excellent silver salmon fishing. At this time no favorable results had been reported from any of the other bodies of water planted.* A study made during the winter of 1935, by Dr. D. I. Rasmussen of the Utah State Agricultural College, showed a severe winter kill of this species in Strawberry Reservoir and Fish Lake.[4]

From 1935 to 1941, silver salmon were taken only occasionally from Strawberry Reservoir and Fish Lake. Favorable results were not reported from any of the other plantings made after 1935.** Since 1940, silver salmon eggs have been so difficult to obtain that no further introductions have been made.

Present Status - It is believed that silver salmon are not found in any of the waters of the state today.***

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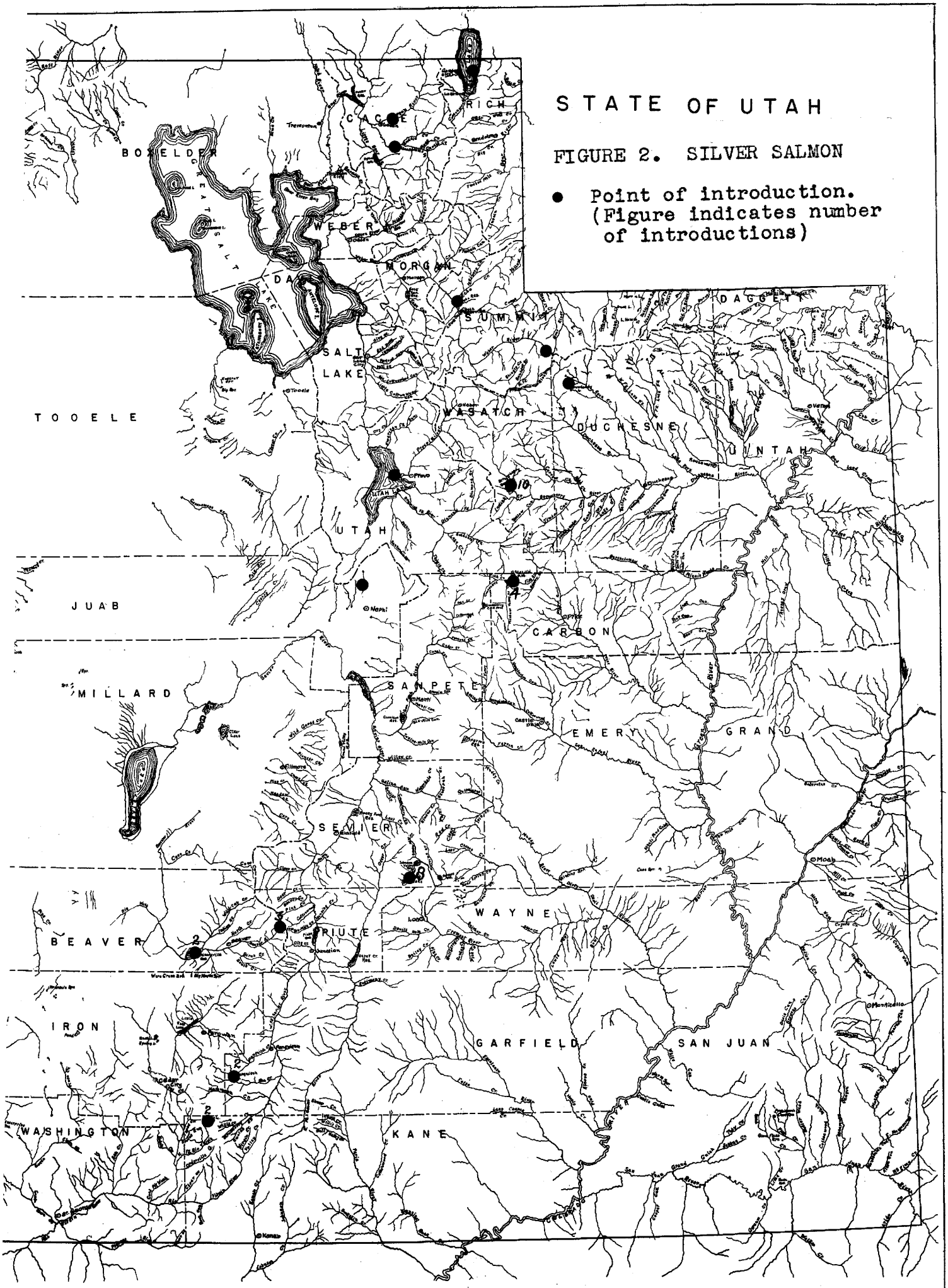
* Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.

** Information obtained from Newell B. Cook, Commissioner, Utah State Fish and Game Dept. (1931-1940), Mantua, Utah.

***Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.


STATE OF UTAH
FIGURE 2. SILVER SALMON
• Point of introduction. (Figure indicates number of introductions)
BOX ELDER
CACHE
RICH
WEBER
MORGAN
SUMMIT
DAGGETT
DAVIS
SALT LAKE
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE
Great Salt Lake
Utah Lake
Tooele
Ogden
Provo
Nephi
Price
Vernal
Moab
Monticello
Kanab

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4. Cook, Newell B. Report of the state fish and game commissioner of the state of Utah from July 1, 1934 to June 30, 1936. Salt Lake City, Utah: State of Utah, 1936, p. 28.

KOKANEE

Scientific Name - Oncorhynchus nerka kennerlyi.

Common Names - Kokanee; Little Redfish Salmon; Walla; Kennerley's Salmon; Yank; Silversides.[1,2]

General - The body of the kokanee is slender like that of a typical trout or salmon. In breeding males, the body is usually moderately deep, and the jaws may be hooked. In color the kokanee is bluish on the dorsal surface and silvery on the sides and ventral surface. A few black spots occur on the back and tail. In breeding season both sexes exhibit a reddish tinge; hence the name little redfish.[2]

Little redfish salmon are believed to be dwarf forms of the blueback salmon, Oncorhynchus nerka nerka, which have established themselves in certain lakes in the northwestern part of the United States and in British Columbia. They mature at 12 inches or less, and at ½ to 1 pound in weight. The kokanee spawns once and then dies, as do all members of the genus Oncorhynchus.[1] This salmon has been widely introduced into the Rocky Mountain region.

Kokanee feed chiefly on small crustaceans and insects, both aquatic and terrestrial forms. They spawn in the fall in inlets and outlets of lakes. The kokanee is locally important in certain lakes in Idaho, Washington, Oregon, British Columbia, and in several other states. Fishermen take these fish on flies, natural baits, and by trolling. The flesh is of a fine quality, except during the spawning season.[2]

First Introductions - According to available records

this species was first introduced into Utah in 1922. A shipment of 250,000 kokanee fry was received from the state of Washington in the fall of this year.[3] In the early spring of 1923, the surviving 224,000 were planted as fingerlings in Bear Lake in Rich County.[4] Available records do not indicate the results of this planting.

Subsequent Introductions - Ninety-eight thousand kokanee fry were planted in Strawberry Reservoir in 1937 by the U. S. Bureau of Fisheries. The source of this shipment of fry is not known.[5] In 1938, 401,200 kokanee fry were procured by the State Fish and Game Department from Pend Oreille Lake in Idaho, and planted in Swan Creek, a tributary to Bear Lake.[6] Some of these showed up in a fish trap in Swan Creek during the summer of 1939.[7] In 1939, 244,000 eggs from Idaho were received and hatched at the Springville, U. S. Fish Station. The resulting fry were planted in Strawberry Reservoir and Bear Lake.[8] About 1941 kokanee began to show up occasionally in these two bodies of water. During the early spring of 1946, several were observed in the fish trap at Bear Lake.

In 1947, 40,000 fingerlings, raised from eggs obtained in Idaho, were planted in Strawberry Reservoir.* According to Curtis Earl, a warden stationed at Strawberry Reservoir, a few small kokanee were taken by fishermen there during the 1948 season.

Present Status - Until the present time introductions

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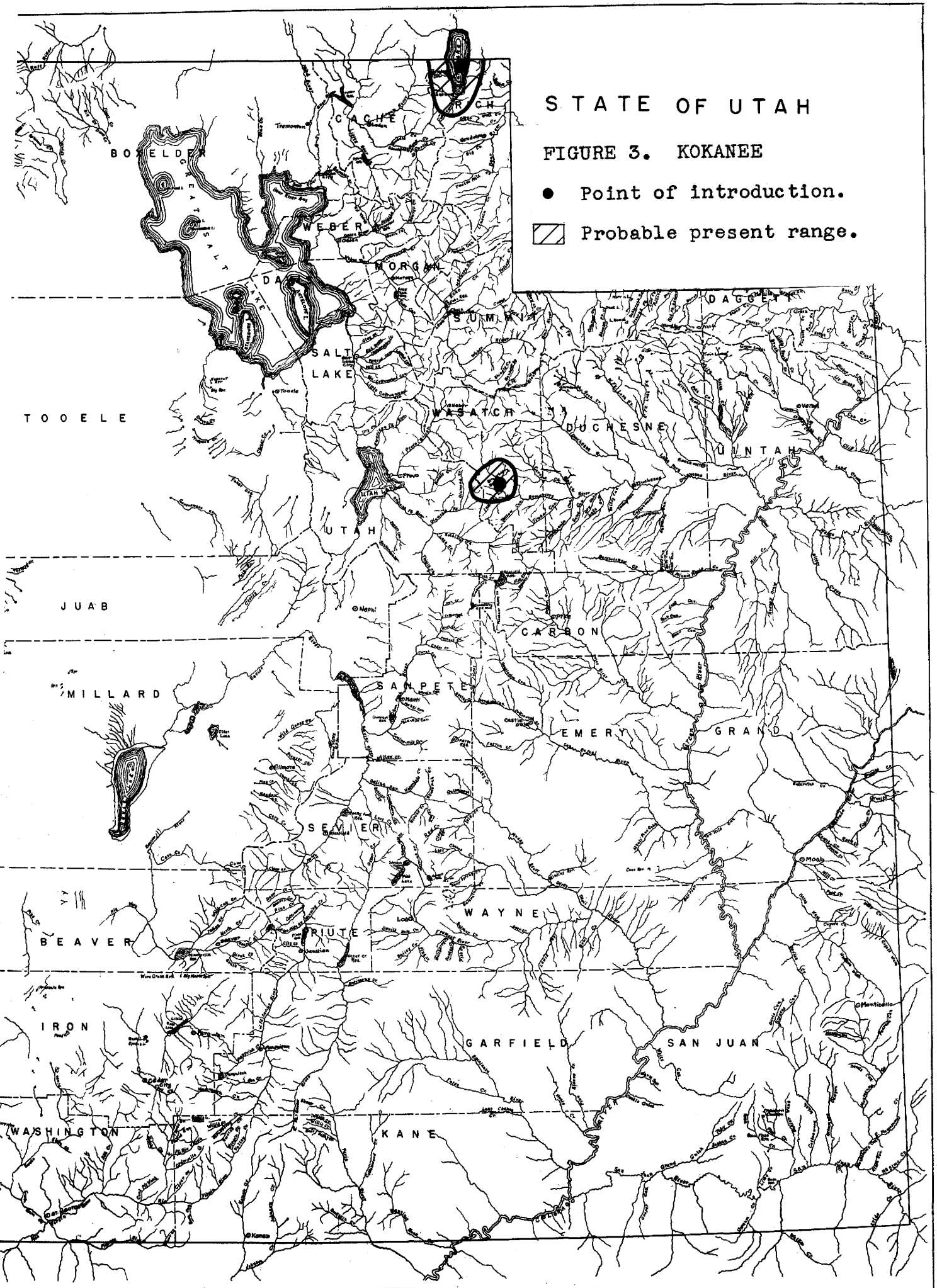
*Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.

of kokanee into Utah waters have not been successful. Limited populations are probably present only in Strawberry Reservoir and Bear Lake at the present time (Figure 3).


STATE OF UTAH
FIGURE 3. KOKANEE
● Point of introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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7. Cook, Newell B. Report of the state fish and game commissioner of the state of Utah from July 1, 1938 to June 30, 1940. Salt Lake City, Utah: State of Utah, 1940, p. 32.

8. Ryan, C. W. Annual report, Springville, Utah, U. S. Fish Station. 1939.

KING SALMON

Scientific Name - Oncorhynchus tshawytscha.

Common Names - King Salmon; Chinook Salmon; Spring Salmon; Tyee; Quinnat.[1]

General - The king salmon is the largest species of the genus Oncorhynchus. The body of this salmon is comparatively robust, its depth being greatest near the middle. The color is dusky above, silvery tinged with olive or blue on the sides, and silvery below. The sides of the head are usually darker than the rest of the body. The back, dorsal fin, and tail are frequently covered with round black spots. Sometimes these spots are few in number, but never wholly absent.[2] The usual weight is from 16 to 30 pounds at maturity; however, a few specimens up to 100 pounds have been reported.[1]

The king salmon is found from central California and China north along their respective coasts to the Bering Straits. The young are hatched high up in fresh water streams, and a few weeks after emerging from the gravel they begin their seaward migration. In the ocean they grow rapidly, attaining maturity in three to eight years. King salmon begin spawning migrations in July and reach their peak in August, after which the numbers decline steadily. They are known to travel great distances to spawn.[1] Soon after spawning both males and females die, each individual spawning only once.[2] Overfishing, dam construction, irrigation, and pollution have greatly decreased runs of king salmon. Only 20 percent of their former spawning areas are now available to them.[1]

The king salmon is of great importance to commercial fishermen and to anglers.

First Introduction - The first introduction of king salmon into Utah occurred in August of 1873. One hundred fifty thousand fry from the McCloud River, California, U. S. Fish Station were planted in the Jordan River near South Jordan by A. P. Rockwood of Salt Lake City (Figure 4). It is interesting to note that at this time the king salmon was classified as Salmo quinnat by the U. S. Fish Commission.[3]

Subsequent Introductions - During the period 1873 to 1879, many thousands of king salmon fry were planted in Utah waters (Table 3). All of these were shipped into Utah either as eggs or as fry from the McCloud River, California, U. S. Fish Station.

Table 3 KING SALMON FRY INTRODUCTIONS IN UTAH (1873-1879)*

Year	Locality	County	Number
1873	Jordan River	Salt Lake	150,000
1873	Jordan River	Salt Lake	32,000
1874	Jordan River	Salt Lake	195,900
1875	Jordan River	Salt Lake	112,000
1876	Ogden River	Weber	1,750
1876	Weber River	Weber	1,750
1876	Blacksmith Fork	Cache	8,000
1876	Box Elder Creek	Box Elder	4,000
1876	Twin Spring Creek	Tooele	2,500
1876	Bear River	Rich	11,000
1876	Silver Creek	Juab	4,000
1876	Jennings Pond	Davis	1,200
1877	Jennings Pond	Davis	2,000
1877	Mill Creek	Salt Lake	16,000
1877	Jordan River	Salt Lake	57,000
1879	Jordan River	Salt Lake	32,000
1879	Spring Run	Salt Lake	2,500
1879	Twin Spring Creek	Tooele	4,000
1879	San Pitch River	Sanpete	1,500
1879	Mill Creek	Salt Lake	4,000
1879	Mill Creek	Salt Lake	3,000
1879	Jordan River	Salt Lake	7,000
		Total	653,100

*Data taken from annual reports of the U. S. Fish Commission.

Available reports indicate that these introductions were complete failures. As a result introductions of this species were discontinued in 1880.

Several comparatively recent attempts to establish this species were made in 1926 and 1927. During these two years several million king salmon eggs were shipped to Utah from the Pacific Coast. These were substituted for silver salmon eggs which had been ordered by the State Fish and Game Department. The eggs were hatched at the Springville Hatchery and the resulting fry planted in Carbon, Duchesne, Juab, Sevier, Utah, Wasatch, and Rich counties.[4] In 1929, two king salmon were reported taken from Fish Lake; however, no authoritative

verification of this was made.* It is believed that these introductions were as unsuccessful as those made during the period from 1873 to 1879.

Present Status - The king salmon is not found in Utah today.

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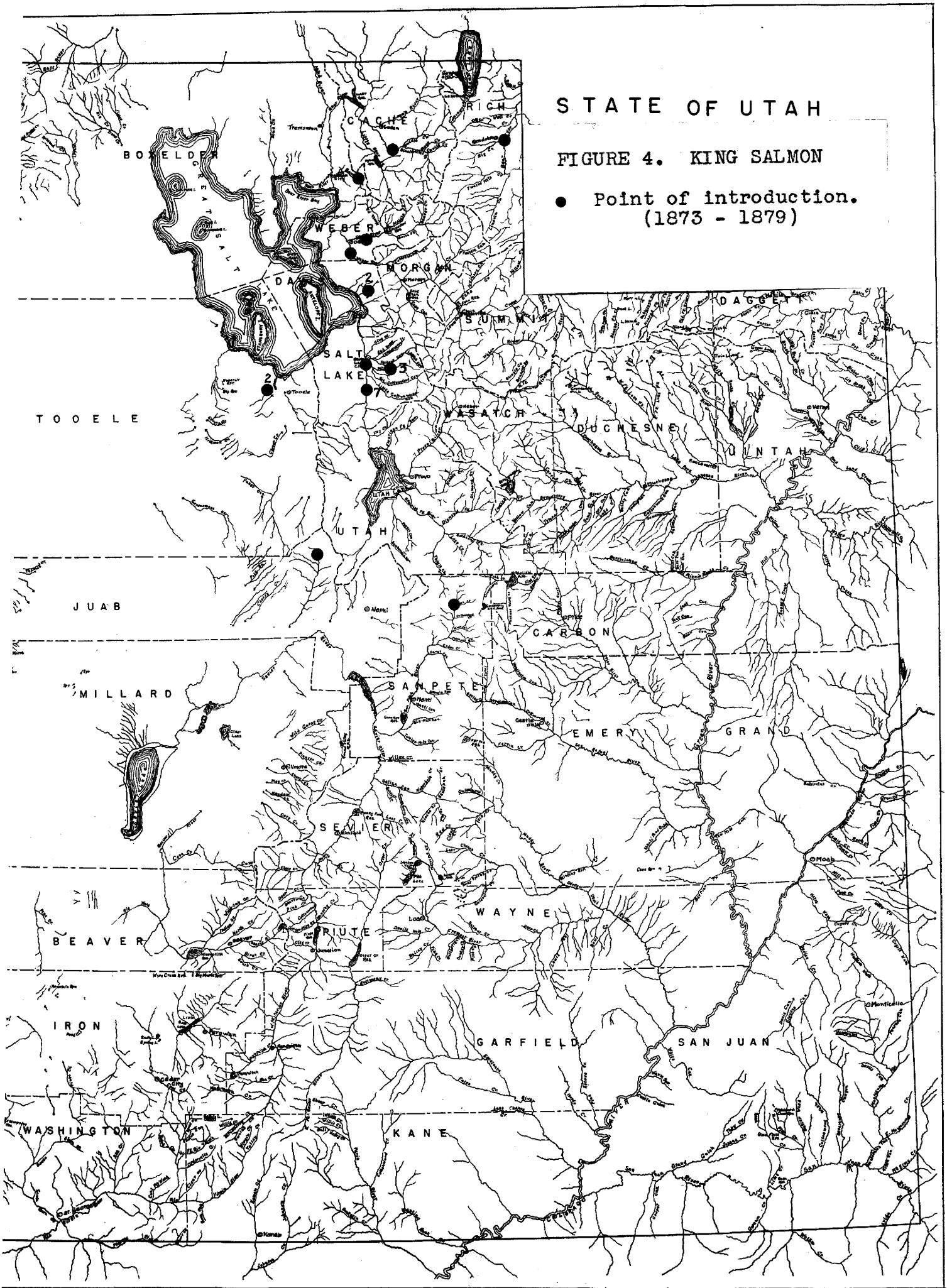
*Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.


STATE OF UTAH
FIGURE 4. KING SALMON
• Point of introduction. (1873 - 1879)
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
TOOELE
WASATCH
DUCHESNE
UINTAH
DAGGETT
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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SEBAGO SALMON

Scientific Name - Salmo salar sebago.

Common Names - Sebago Salmon; Land-locked Salmon; Lake Salmon.[1,2]

General - The land-locked sebago salmon is much like the larger Atlantic salmon, Salmo salar salar. Its form is somewhat more plump and its scales are larger, however. The dorsal surface is dark green to brown, and the sides and belly are silvery. Dark brown blotches are present on the upper half of the body.

The sebago salmon originally occurred in four river basins in Maine, and perhaps in a few lakes in the British Provinces.[3] Many attempts have been made to introduce this species into various sections of the United States, with but little success.[2] Its preferred habitats are rivers which ultimately empty into the ocean, or lakes at the heads of these rivers. It is believed that it does not do well in waters where the smelt, its favorite food, is not found.

The sebago salmon spawns in the fall of the year after ascending tributary streams. After spawning it descends to deep water for the winter. It frequently follows schools of smelt up and down tributary streams as they make their spawning migrations.

The sebago salmon is a favorite of anglers in Maine. If taken on light tackle it provides excellent sport. The flesh of this salmon is especially palatable.[3]

First Introduction - According to available records the first introduction of the sebago salmon into Utah waters was

made on March 7, 1883. On this date A. P. Rockwood of Salt Lake City, received a shipment of 1,000 sebago salmon eggs from Caledonia, New York. On March 14th of that same year he received a second shipment of 600 eggs from New Castle, Canada.* Whether these eggs hatched, and what disposition was made of the resulting fry if they did hatch, is unknown.

Subsequent Introduction - Early in 1875, Mr. Rockwood received another shipment of sebago salmon fry. The number of fry in this shipment is not known. These were sent to him by Mr. Seth Green of Rochester, New York. In August of 1875, an estimated 300 of these salmon were reported to be doing well in a pond on his farm near Salt Lake City.** What happened to these young sebago salmon is unknown.

Five thousand eggs of this species were received at the Murray Hatchery in 1899, from the U. S. Fish Cultural Station, at Green Lake, Maine.[4] In 1900, 10,000 eggs were sent to the Murray Hatchery from Maine by the U. S. Fish Commission.[5] In June of 1901, 5,000 sebago salmon fry were planted in the Spring Run, a stream near Murray.[6] In 1902 and 1903, 20,000 eggs were received at the Murray Hatchery from the U. S. Fish Cultural Station at Green Lake, Maine.[7,8] No records are available as to the disposition of the fry resulting from these eggs.

In 1924, 30,000 fry from the Murray Hatchery were planted in Fish Lake, in Sevier County. These were hatched from eggs

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* Deseret Evening News, March 17, 1873.

**Deseret Evening News, August 19, 1875.

sent to Utah from a U. S. Fish Cultural Station at Rangeley Lake, Maine.[9] Available records indicate no reports from this planting. From 1931 to 1935, 137,400 sebago salmon fingerlings were sent to Utah from Maine by the U. S. Bureau of Fisheries.[10,11,12,13] Records do not indicate the bodies of water in which these fingerlings were planted. It is believed, however, that they were planted in Strawberry Reservoir, Scofield Reservoir, and Fish Lake.* Records of any sebago salmon being taken by anglers in the state of Utah are not known.

Present Status - The sebago salmon is not known to be present in the state today.

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*Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.

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RAINBOW TROUT

Scientific Name - *Salmo gairdnerii*.

Common Names - Rainbow Trout; Rainbow; Steelhead (Sea-run Form).[1]

General - The rainbow trout has a short head, a medium to small mouth, and a fairly deep body. In color the rainbow is bluish to olive-green above, and silvery on the sides and belly. A broad pink band extends along the lateral line. The back, sides, and dorsal and caudal fins are heavily spotted.[1,2,3]

The rainbow trout is native to the streams of the Pacific Coast. The steelhead is not a distinct species, but is merely a sea-run form of the rainbow. The rainbow does well in warm or cold water, and can stand maximum summer temperatures up to 83°F. if the oxygen content remains high enough. They lend themselves to intensive feeding under crowded conditions, and are generally more disease resistant than other species of trout. The rainbow can adapt itself to a variety of habitats, from the fast turbulent water of mountain streams to the calm smooth water of lakes.[1]

The food of the young rainbow consists chiefly of insects and crustaceans, and in the adult stage these and other larger foods are important. Rainbows also are known to feed on algae and other aquatic plants to a considerable extent.

Rainbow trout migrate more extensively than other species of trout, and this tendency has given rise to the sea-run steelhead form.[3]

Many fishermen award the rainbow first place in gaminess

and fighting ability. This fish will take all sorts of artificial and natural baits, and is frequently caught by both amateurs and experts.

The rainbow has been introduced into many sections of the United States, and is now commonly found where conditions are suitable.

First Introductions - It is believed that the earliest introduction of rainbow trout into Utah was made in 1883. Dr. J. D. M. Crockwell of Salt Lake City, received a shipment of eggs from the McCloud River, California. These were hatched in April of that year.* What distribution was made of the resulting fry is unknown. It is possible that they were liberated in the vicinity of Dr. Crockwell's home near Salt Lake City.

Subsequent Introductions - It is possible that there may have been some introductions of rainbows between 1883 and 1893, of which records are unavailable. In 1893 G. W. Thayer of Provo received a shipment of 10,000 eggs from the McCloud River, U. S. Fish Station.[4] The disposition of the fry resulting from these eggs is unknown. During the years 1894 and 1895, applicants in Utah received 43,880 eggs from the Neosho, Missouri, U. S. Fish Station.[5,6] The disposition of the fish resulting from these eggs is unknown.

The first fry sent to Utah by the U. S. Fish Commission were received in 1896 by State Fish and Game Warden, John Sharp. Four thousand, fifty fry were received and planted:

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*Deseret Evening News, April 18, 1883.

1,125 in the Ogden River at Ogden; 1,125 in Big Cottonwood Creek near Salt Lake City; and 1,800 in a pond near Pleasant Grove in Utah County. In this same year private applicants in the state received 20,000 fry from the U. S. Fish Commission.[7] Where these private individuals planted their fry is unknown. In 1897, 1,000 fry from the McCloud River, U. S. Fish Station were planted in the Jordan River, near Utah Lake. In the same year 1,500 fry were distributed to private Salt Lake City applicants.[8] In 1898, 4,000 rainbow fry from the McCloud River, U. S. Fish Station were liberated in Silver Islet Lake, near Park City, by John Sharp.[9] Records of the results of these early introductions of rainbow trout into Utah are not available.

The completion of the new Murray Hatchery in 1898 increased possibilities for the introduction of this species into public waters. In excess of 200,000 eggs were received at the hatchery during 1899 and 1900. These eggs were sent to Utah from the U. S. Fish Cultural Station at Portland, Oregon. In 1900, a number of plants of rainbow fry were made in the streams of Salt Lake County. James L. Walker, the hatchery superintendent, liberated 500 in Little Cottonwood Creek; 1,000 in Big Cottonwood Creek; 500 in Mill Creek; and 7,000 in the Jordan River.[10] Shortly after 1900, fishermen began to regularly take these trout from some waters of the state.*

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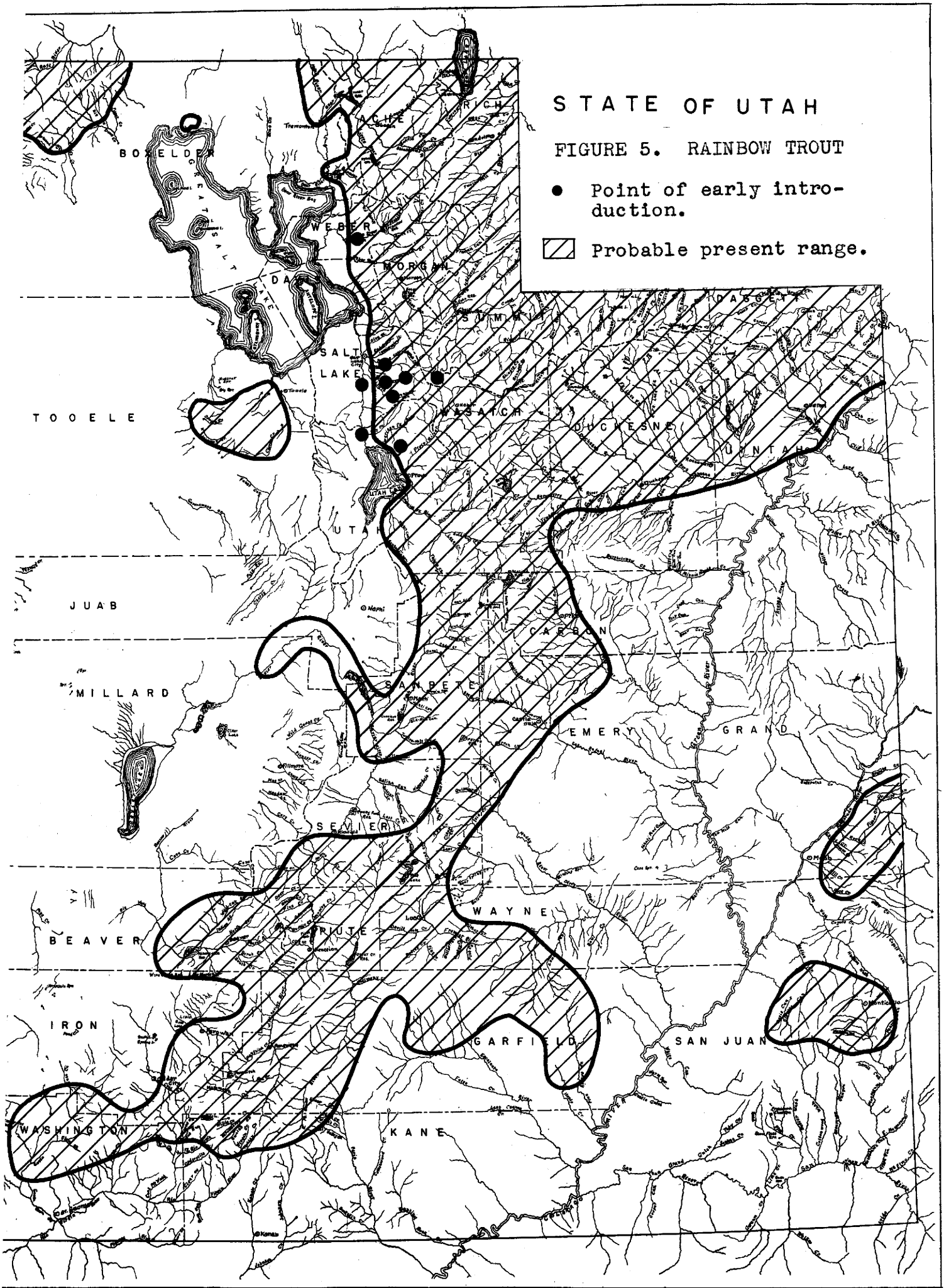
*Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.

By 1913 more rainbow trout were reared in State Fish and Game Department Hatcheries than any other species.[11] By this time rainbow trout had been introduced into almost all of the waters of the state, and many favorable reports of their growth and increase had been received.

Of the 8,353,706 rainbow trout planted from state fish hatcheries during 1947 and 1948, approximately one-half were of legal size.[12]

Present Status - Today the rainbow is found in almost all bodies of water in the state which will support trout. (Figure 5).


STATE OF UTAH
FIGURE 5. RAINBOW TROUT
Point of early introduction.
Probable present range.
BOX ELDER
WEBER
MORGAN
SUMMIT
DAGGETT
SALT LAKE
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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GOLDEN TROUT

Scientific Name - Salmo agua-bonita.

Common Name - Golden Trout.[1]

General - The golden trout has a slender body and a short conical head. The scales of this trout are very small.[2] The beauty of the golden trout cannot be praised too much. Any more striking combination of colors cannot be imagined; deep vermillion on the belly fading to light gold on the sides, with a bright rosy stripe crossed at intervals by beautifully contrasting dark parallel parr marks which persist to maturity. The cheeks are of bright gold, while black spots cover the upper sides and dusky-olive upper surface. The lower fins are orange, and they are tipped with white; the olive dorsal fin has a single bright red spot on its upper anterior surface.[1]

The golden trout is native in the headwaters of the Kern River, California, at elevations around 10,000 feet. They seldom exceed 14 inches in length, although a few large individuals have been reported from Wyoming lakes.[2]

Golden trout are apparently limited to cold clear waters at high elevations. They seem to be well adapted to long hard winters, short growing seasons, and poor food conditions.

Golden trout spawn in the spring, usually in June or July. Insects and insect larvae are the chief foods of these trout.[1] Golden trout have been introduced in limited numbers into several of the western states.

The attraction the golden trout holds for fishermen is in its remarkable beauty and in the difficulty entailed in

taking it. It is neither so gamy nor so tasty as other more easily secured species of trout.[2]

First Introduction - According to available records the only introduction of golden trout into Utah was made in 1936. In this year 11,100 golden trout fingerlings, from the Springville, U. S. Fish Station, were planted in waters of the state.[3] Records do not indicate the exact places where these trout were liberated.

Present Status - Golden trout are not known to exist in Utah today.*

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*Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.

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BROWN TROUT

Scientific Name - Salmo trutta.

Common Names - Brown Trout; German Brown Trout; Von Behr Trout; Loch Leven Trout.[1]

General - The brown trout has a slender body, and a medium sized head. It can be readily distinguished by its square tail and its large scales. The general color of the brown trout, as the name implies, is brown. The sides and belly vary from brown to yellow.[2] The sides are usually heavily marked with dark and red spots, more or less ocellated.[3]

The brown trout was introduced into the United States from Europe in 1883. At about this same time a close relative, the Loch Leven trout, was introduced from Scotland. It is extremely doubtful if there is a pure strain of either of these in North America today. Haphazard intermixing has resulted in loss of purity of both strains.

Browns do well in a variety of waters. Apparently they prefer and do best in the lower reaches of streams. They have also been known to do well in lakes and ponds. They will survive water temperatures up to 81°F. if the oxygen content remains adequate.[1] In addition to a regular diet of minnows, insects, and crustaceans, browns will take such items as small mammals and frogs.[2]

Brown trout spawn in the fall, usually in spring-fed tributaries, but will spawn in comparatively heavy water from 6 to 24 inches deep.[1] In many sections of the United States they have proven very capable of natural propagation.

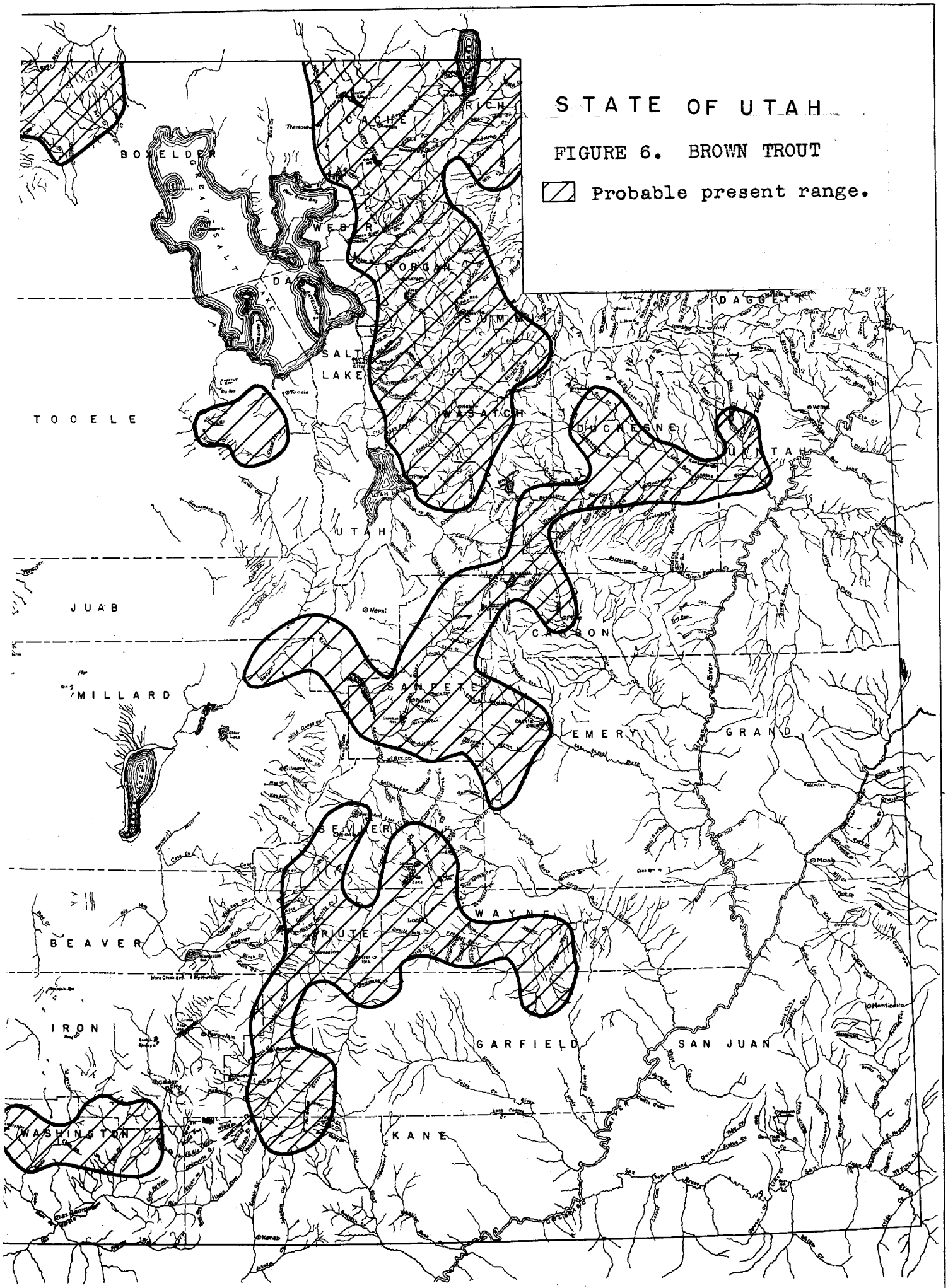
This species is of great importance to trout fishermen in many parts of North America today. It can be taken on both natural and artificial baits, and its flesh is very palatable.[3]

First Introduction - In 1895 an application for a supply of brown trout was made to the U. S. Fish Commissioner by John Sharp.[4] Records of shipments of this species into Utah prior to 1908 are not available. However, David H. Madsen of Salt Lake City, can remember catching brown trout in a spring near Provo about 1900. This would indicate that the date of the first introduction must have been sometime prior to 1900.

Subsequent Introductions - In the fall of 1908 a large shipment of brown trout eggs from the East was received at the Murray Hatchery. The resulting fry were planted in many areas of the state in 1909. Detailed accounts of these plantings are not available. By 1910 locally raised browns were being planted regularly in most trout waters throughout the state.[5]

A 1912 report indicates that browns were quite numerous in the Provo and Weber Rivers.[6] By 1913 the brown was one of the important artificially propagated fish in state hatcheries.[7] Today the brown is still one of our most important hatchery-reared fish; and during 1947 and 1948, 5,888,710 were planted in public waters from state hatcheries.[8]

Present Status - The brown trout is found today in most trout waters of Utah (Figure 6). It is probably more numerous, however, in the lower reaches of streams.


STATE OF UTAH
FIGURE 6. BROWN TROUT
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
BEAVER
PIUTE
WAYNE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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8. Leonard, Ross. Twenty-eighth biennial report of the state fish and game commission of the state of Utah. Salt Lake City, Utah: State of Utah, 1948, pp. 73-80.

LAKE TROUT

Scientific Name - Cristivomer namaycush.

Common Names - Lake Trout; Mackinaw Trout; Longe; Touge.[1]

General - The lake trout has a slender to moderately slender body and a short head.[2] The general color is dark gray with round pale spots, sometimes tinged with pink. The belly is usually pale, but it may be dark and spotted. The deep fork of the tail is very characteristic.[3]

The lake trout is native to the Great Lakes, the region north to the Arctic Circle, and east to northern New England. It has been widely introduced into many of the deeper cold water lakes of the West. A good supply of forage fishes and deep cold water are the requirements of lake trout. They spawn in the fall in shallow water. With this exception they usually live in deep water.[2] They can sometimes be taken for a short time in the spring on a fly in shallow water. They are good fighters when handled with light tackle.[3]

In the vicinity of the Great Lakes, lake trout are caught and sold commercially. The flesh is excellent, although slightly oily. In the spring the flesh is exceptionally delicious.[2]

First Introduction - In 1894 Territorial Fish and Game Warden, A. M. Musser, received 100,000 lake trout eggs from the Northville, Michigan, U. S. Fish Station.[4] After hatching, the resulting fry were planted in Utah Lake.* The results of this introduction are unknown.

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*Deseret Evening News, January 20, 1894.

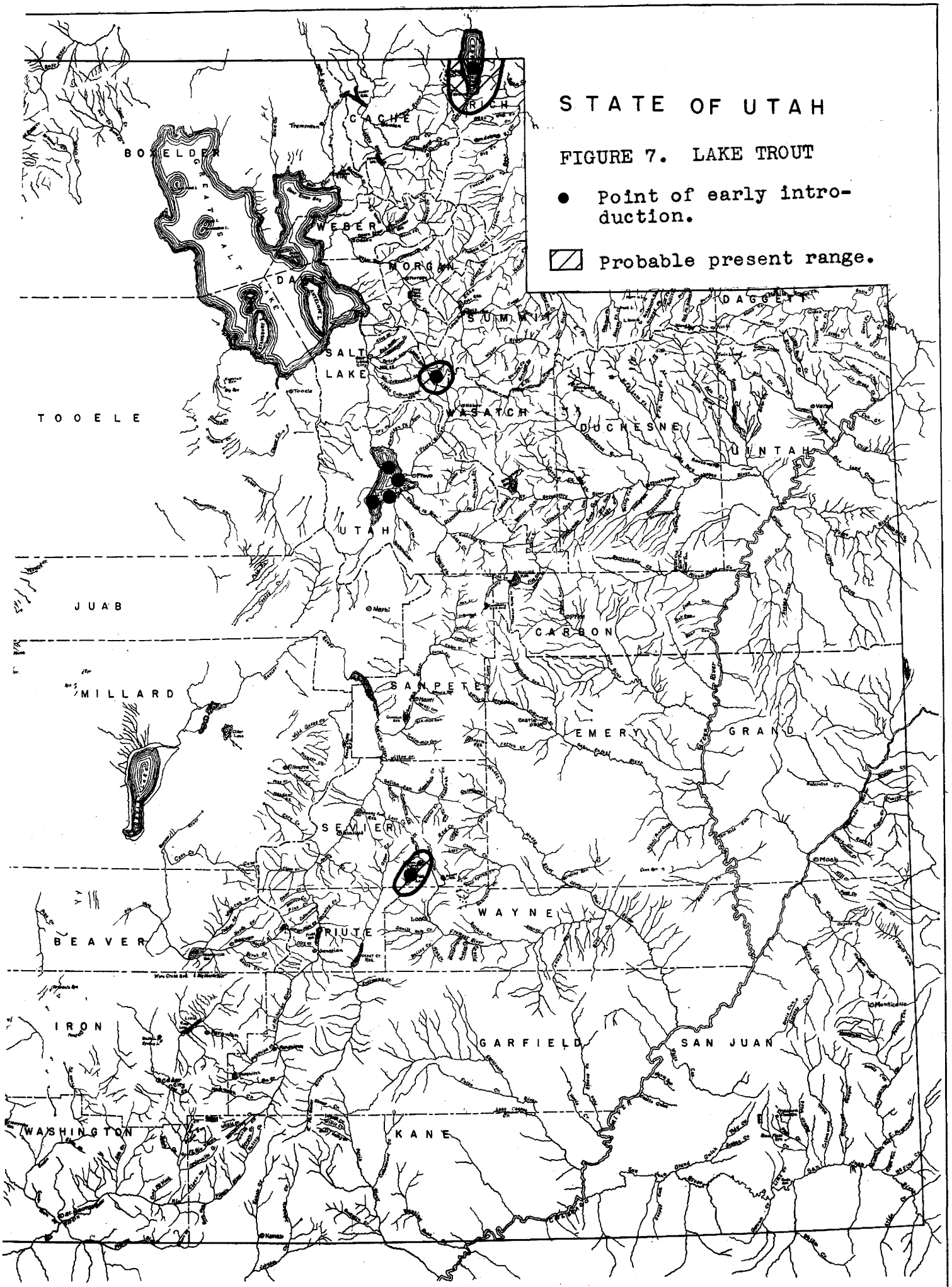
Subsequent Introductions - No records of any introductions between 1894 and 1899 are available. John Sharp, State Fish and Game Commissioner, received 500,000 lake trout eggs from the Duluth, Minnesota, U. S. Fish Station in 1899. These were hatched at the new Murray Hatchery. On February 27, 1900, 280,000 fry were planted in Spring Creek, a tributary to Utah Lake, by Hatchery Superintendent James L. Walker and Warden George J. Duke. On March 5, 1900, 160,000 fry were put in spring streams, tributary to Utah Lake near Provo, by the above-mentioned men. At this same time 50,000 fry were planted in the Provo River near Heber, by Thomas Clatworthy. In the same year 400 fry were liberated in Fish Lake in Sevier County.[5]

Three-hundred thousand fry were received at the Murray Hatchery from Duluth, Minnesota, in January of 1901.[6] These were distributed as follows: 50,000 into the Jordan River in Salt Lake County; 200,000 into streams tributary to Utah Lake; and 50,000 into the lakes at the head of Big Cottonwood Canyon.[7] By 1904 the only plantings which had made any showing were those in the lakes at the head of Big Cottonwood Canyon. Quite a number of good sized lake trout were taken from these lakes in 1904.[6]

In 1905, 100,000 eggs from the East were received at the Murray Hatchery.[8] In this year fairly substantial plantings of fry were made in a number of the larger bodies of water in the state. A report from Fish Lake indicated that the lake trout were doing well there at this time. By 1906, no favorable reports had been received from the Utah Lake plants.[9]

Fishermen were reporting good catches of this species from Fish Lake in 1910. It was believed that lake trout were reproducing well there at this time.[10] In 1911 the first lake trout fry were put into Bear Lake.[11] From this time until the present, plantings of lake trout have been made in bodies of water where earlier plants had showed promise.

Present Status - At the present time the lake trout is found in only three locations in Utah; Fish Lake, Bear Lake, and the lakes at the head of Big Cottonwood Canyon (Figure 7).


STATE OF UTAH
FIGURE 7. LAKE TROUT
● Point of early introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
SUMMIT
DAGGETT
DAVIS
SALT LAKE
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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8. Bowers, George M. Propagation and distribution of food fishes. Report of the Commissioner of Fish and Fisheries for the year ending June 30, 1905. Washington, D. C.: Govt. Printing Office, 1906, p. 436.

9. Sharp, John. Report of the state fish and game commissioner for the years 1905 and 1906. Salt Lake City, Utah: Deseret News, 1907, p. 33.

10. Chambers, Fred W. Report of the fish and game commissioner of the state of Utah for the years 1909 and 1910. Salt Lake City, Utah: Tribune Reporter Printing Co., 1911, p. 49.

11. Chambers, Fred W. Report of the fish and game commissioner of the state of Utah for the years 1911 and 1912. Salt Lake City, Utah: The Arrow Press, 1913, p. 13.

EASTERN BROOK TROUT

Scientific Name - Salvelinus fontinalis.

Common Names - Brook Trout; Speckled Trout; Squaretail.[1]

General - The eastern brook trout has a moderately slender body and a rather blunt head. The back is dark olive with light worm-like streaks. The olive sides have red spots with brown margins. The lower fins have white front borders, and the tail is very slightly forked.[1,2,3]

The brook trout is native to the eastern part of North America from northern Georgia, north to Labrador, and west to the Great Lakes region. They thrive best in streams with maximum summer temperatures of 66°F. or less. They also do well in ponds and lakes in which cool bottom waters contain sufficient oxygen.[2] The food of eastern brook trout consists chiefly of insects, worms, and crustaceans.[1]

Brook trout migrate upstream in late summer and spawn in October and November. After spawning they move down stream for the winter.[2]

Since their introduction, brook trout are commonly found in many sections of the West. The brook trout is one of the most beautiful and gamy fishes. The flesh of this trout is exceptionally palatable, and it is much prized by anglers.

First Introduction - According to available data the eastern brook trout was first introduced into Utah in 1875. A. P. Rockwood of Salt Lake City, received a shipment of 300 brook trout, ranging in size from 1 to 4 pounds, from Seth Green of Rochester, New York. These were planted in a stream

on Mr. Rockwood's farm near Salt Lake City.* The results of this planting are not known.

Subsequent Introductions - From 1875 to 1894 there are no records available of any introductions of eastern brook trout into Utah. It is believed, however, by G. R. Walker of Salt Lake City, that his uncle, Samuel Sharp Walker, had a few brook trout fry brought in from the East in 1884. These were held in ponds at the mouth of Big Cottonwood Canyon.

The first introduction of this species into the waters of Utah by the U. S. Government was made in 1894. Two thousand yearling eastern brooks from the Leadville, Colorado, U. S. Fish Station were sent to the territory by Col. Marshall McDonald, the U. S. Fish Commissioner. The average length of these fish was 12 inches. One thousand, five hundred of these were put in Utah Lake, and 500 were liberated in City Creek near Salt Lake City.** By 1895 no successes had been reported from any of the previous plantings.

John Sharp, Territorial Fish and Game Warden, made a number of requests to the U. S. Fish Commission for a supply of eastern brook trout for the public waters of Utah in 1895.[4] In the spring of this year 2,325 adults of this species were received from the Leadville, Colorado, U. S. Fish Station. A number of these were found to be dead upon arrival; and of those remaining 300 were planted in Miller Creek in Carbon

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* Deseret Evening News, August 19, 1875.

**Deseret Evening News, December 1, 1894.

County, and 1,000 were placed in Utah Lake.[5] In 1897, 5,000 eastern brook fry and 400 adults were received from the East by the State Fish and Game Warden. Three hundred of the fry were liberated in Santaquin Creek in Utah County, and the remainder were put in Parley's Canyon Creek in Salt Lake County.[6] The 400 adults were placed in the Jordan River near where it leaves Utah Lake. In this same year 55,000 eastern brook eggs were shipped to five Salt Lake City applicants from U. S. fish stations in the East.[7] What disposition was made of the fry resulting from these eggs is not known.

In 1898, 15,000 eastern brook fry from the Leadville, Colorado, U. S. Fish Station were planted in the "dell" in Parley's Canyon by Mr. Mart Garn.[6] In this same year private applicants in Salt Lake City received 60,000 eggs from U. S. fish stations in the East.[8]

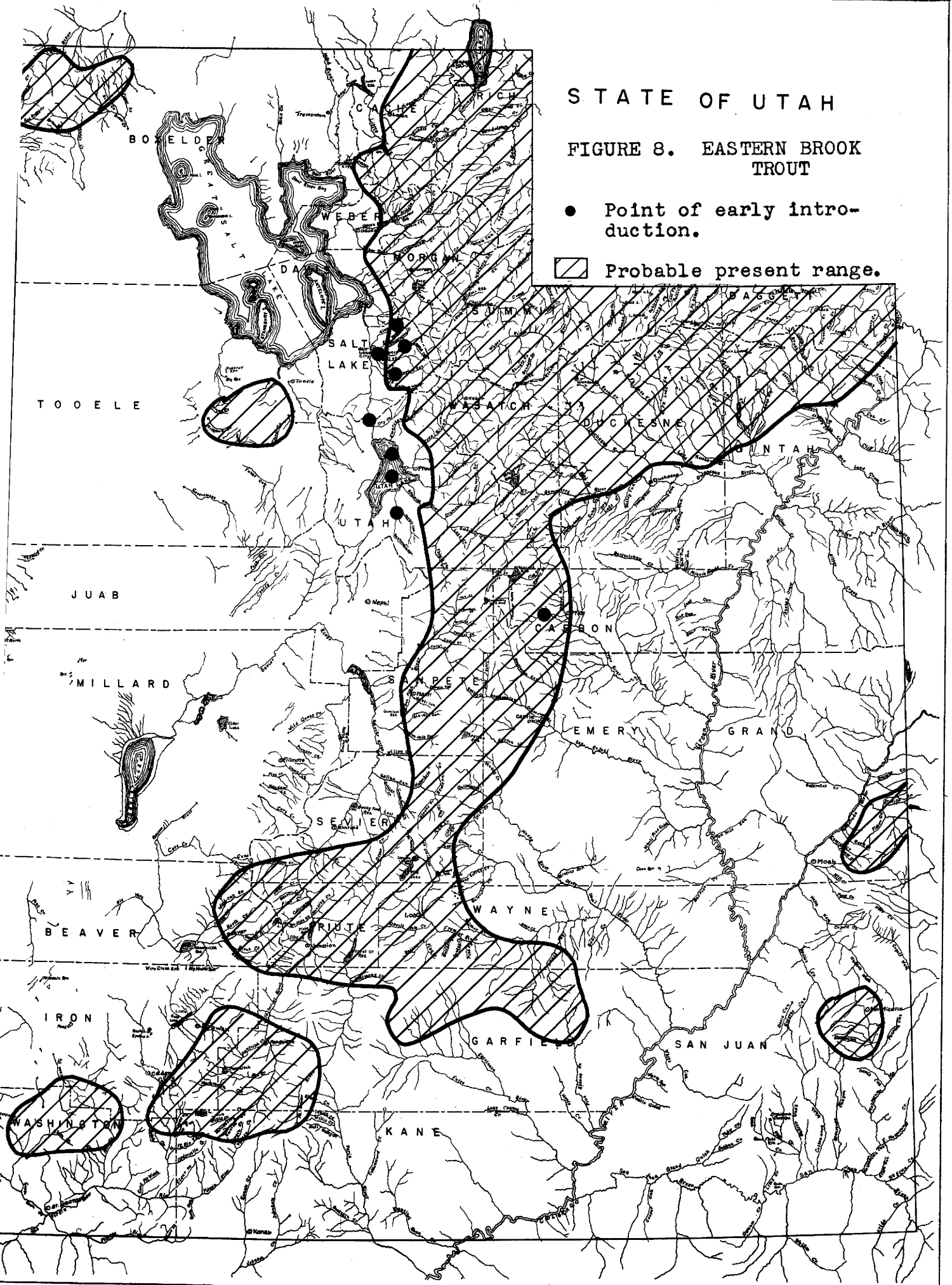
In 1899, thousands of eastern brook eggs and fry were received at the new Murray Hatchery. The following counties of the state were planted with young eastern brook trout in 1900; Box Elder, Cache, Carbon, Davis, Juab, Morgan, Summit, Sevier, Sanpete, Salt Lake, Tooele, Piute, Weber, Utah, and Wasatch.[9] A number of these trout were reported taken in Salt Lake County in 1901, including one specimen weighing over seven pounds from Big Cottonwood Canyon.[10]

By 1903 most of the trout streams of the state had been planted with eastern brook trout.[11] During 1904, 1905, and 1906, continued heavy plantings were carried on in the state. In 1905 eastern brook trout were reported to be doing well in the Provo, Weber, Logan, and Blacksmith Fork Rivers, as

well as in Fish Lake.[12] A 1911 report indicated that they were increasing in Fish Lake.[13]

In 1913 the state turned most of its facilities over to the production of rainbow and brown trout, and from that time until the present eastern brook trout have been propagated only in limited numbers at state hatcheries.[14]

Present Status - In a number of instances the introduction of this species into the high lakes of Duchesne, Uintah, and Summit Counties in the past 12 years has proved to be successful. Eastern brook trout are found in most of the trout waters of Utah today, although in limited numbers (Figure 8).


STATE OF UTAH
FIGURE 8. EASTERN BROOK TROUT
• Point of early introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
BAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
Nephi
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
Moab
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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14. Chambers, Fred W. Report of the fish and game commissioner of the state of Utah for the years 1913 and 1914. Salt Lake City, Utah: The Arrow Press, 1915, p. 15.

LAKE WHITEFISH

Scientific Name - Coregonus clupeaformis.

Common Names - Lake Whitefish; Common Whitefish; Great Lakes Whitefish; Labrador Whitefish.[1]

General - The lake whitefish is more or less ovate in shape with silvery sides that shade to an olive-brown on the dorsal surface. This species is characterized by a long snout, which distinctly overhangs the lower jaw. The head is small in comparison with the rest of the body.

The lake whitefish is native to the great lakes and surrounding territory. It is found in large lakes and ranges to considerable depths. The average weight of this fish is about 4 pounds; however, individuals weighing 20 pounds have been taken from Lake Superior. Whitefish feed chiefly on aquatic insects and planktonic crustacea.

Lake whitefish spawn in the fall in shallow water on sandy or rocky bottoms. They are among the most important of the commercial fishes of the Great Lakes. They are taken occasionally on baited hooks, but are usually caught in gill or pound nets. Whitefish eggs are considered a delicacy and are used to some extent for caviar.[1]

First Introduction - On March 14, 1873, 1,500 lake whitefish eggs were received by A. P. Rockwood of Salt Lake City, from New Castle, Canada. These were to be hatched and the resulting fry put into streams near Salt Lake City.* Further details of this attempted introduction are unknown.

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*Deseret Evening News, March 17, 1823.

Subsequent Introductions - Two million lake whitefish fry were put into Utah Lake in 1895.[2] These were sent to Utah from the Sandusky, Ohio, U. S. Fish Cultural Station.* In 1919, 200,000 fry were planted in Utah Lake by the U. S. Bureau of Fisheries. These fish were sent to Utah from the East.[3] Another shipment of 100,000 lake whitefish fry from the East was put into Utah Lake in 1921.[4] In 1934, 400,000 fry were shipped to Utah from Charleveaux, Michigan. These were planted in the Weber River at Echo Reservoir by M. J. Madsen and Dr. A. S. Hazzard.** So far as is known, no lake whitefish have been taken from any of the waters of Utah.

Present Status - The lake whitefish is not known to be found in Utah today.

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* Deseret Evening News, January 26, 1895.

**Infromation obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.

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AMERICAN GRAYLING

Scientific Name - Thymallus signifer.

Common Names - American Grayling; Montana Grayling; Michigan Grayling.[1]

General - The American grayling has a moderately slender trout-like body and a medium-sized head with large eyes. The large flag-like dorsal fin makes identification unmistakable. The general color is grayish, becoming silvery underneath. The sides are frequently purplish and are marked with small irregular black blotches above the pectoral fins.[1]

The genus Thymallus is native to three widely-separated areas of North America. One of these is in the arctic region of the North, another in the headwaters of the Missouri River in Montana, and the third in northern Michigan.[2] The American grayling has been widely introduced in several of the western states. Although quite successful as a lake fish, the grayling prefers clear, cold streams with gravelly bottoms. Its chief foods are insects, worms, and crustaceans. Grayling are frequently found in schools.[1]

Grayling spawn in the spring of the year in the upper reaches of streams. They take artificial flies readily, almost too readily for their own good. On light tackle they put up a good fight. Their usual size is from 9 to 12 inches, although individuals as heavy as 4 pounds have been taken. The flesh of the American grayling is considered by many to be superior to that of trout.[2]

First Introduction - In the spring of 1899, 75,000 American grayling eggs were shipped to Utah from the Red Rock,

Montana, U. S. Fish Cultural Station. After hatching, a number of the fry were planted in streams near Salt Lake City. On June 24, 4,000 fry were put in Lakes Blanche and Martha, at the head of Big Cottonwood Canyon, by Alex Mitchell. On June 25, 6,000 fry were planted in East Canyon Creek in Summit County near Kimball's Junction, and 6,000 were put in Silver Lake at the head of Big Cottonwood Canyon by Commissioner Sharp and the Salt Lake County Warden.[3] The results of these introductions are unknown.

Subsequent Introductions - In August of 1899, 30,000 fry, hatched at the Cold Spring Trout Company near Salt Lake City from eggs purchased in Montana by Commissioner Sharp, were liberated in spring streams tributary to Utah Lake.[3]

During the two years 1901 and 1902, 120,000 grayling fry were put into the Spring Runs near Murray by Hatchery Superintendent, James Walker. In June of 1902, 10,000 fry were released in Mill Creek just east of State Street, in Salt Lake City.[4] From this time until 1927 very few grayling were planted in Utah waters. By 1903 very few grayling had been reported by fishermen.*

In 1927, 150,000 fry, from the Springville Hatchery, were placed in Cache and Summit County streams.[5] Each year, from 1934 until the present time, an average of approximately 200,000 grayling fry annually have been planted in the high lakes and streams of Uintah, Duchesne, and Summit counties.

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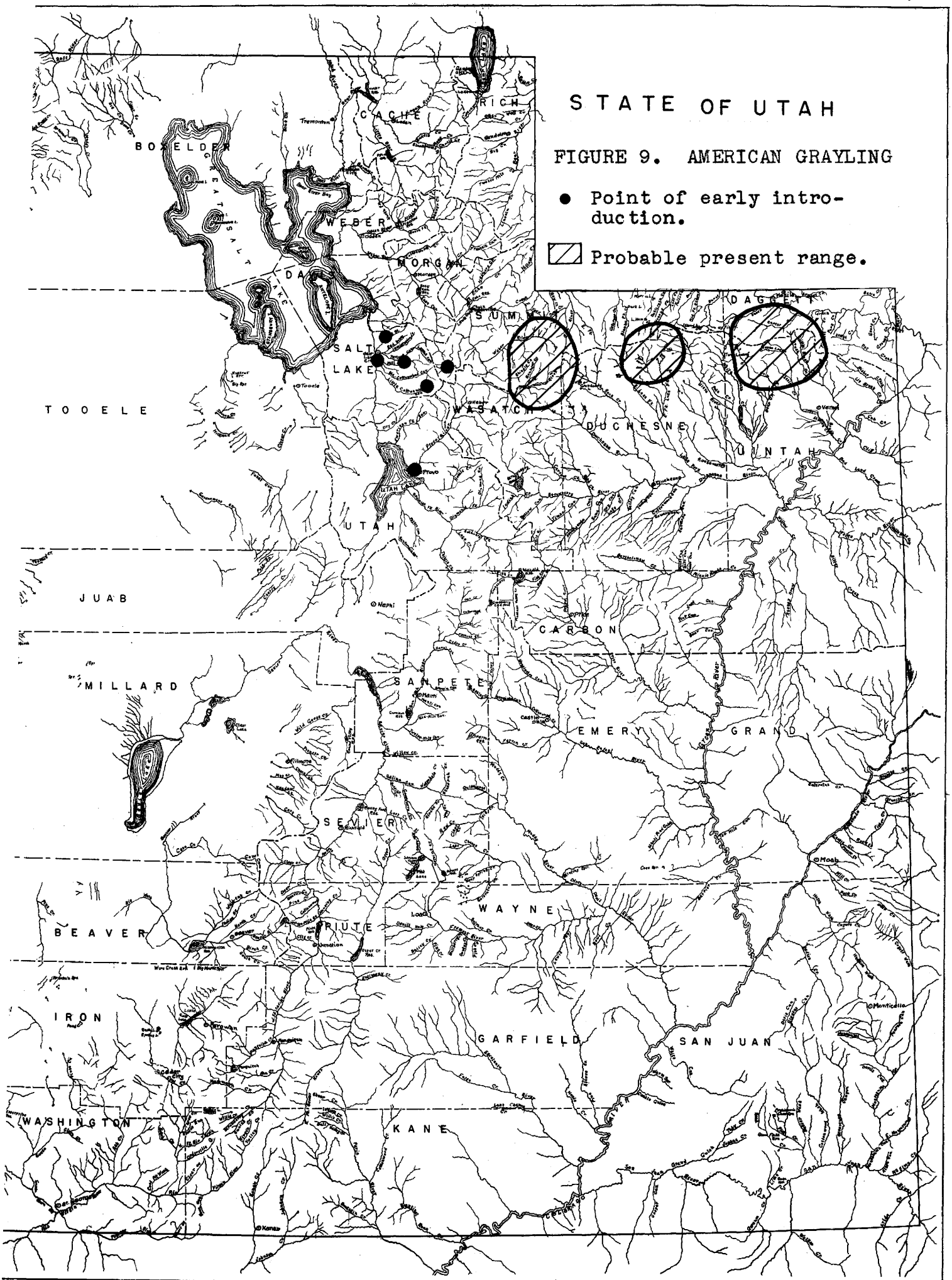
*Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.

About 1936 reports of grayling catches from a few of these lakes were reported.*

Present Status - Some of the high lakes and a few of the higher streams in Uintah, Duchesne, Daggett, and Summit Counties now offer good grayling fishing (Figure 9).

*Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.


STATE OF UTAH
FIGURE 9. AMERICAN GRAYLING
• Point of early introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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AMERICAN EEL

Scientific Name - Auguilla bostoniensis.

Common Names - American Eel; Common Eel; Fresh-Water Eel.[1]

General - The long snake-like body of the American eel is covered with tiny elongated scales. The head of the eel is small and conical. The dorsal fin, which is continuous with the caudal and anal fins, has short rays. The tail is compressed, and the lateral line is well developed. The dorsal surface is dark brown, and the ventral surface is light in color. Females reach a length of 48 inches, but the males seldom exceed 18 inches.

In North America the eel is restricted to the waters east of the Rocky Mountains. At one time they were quite numerous, but the construction of dams in waterways is thought to have greatly reduced their numbers. They spawn in the sea, and the adults are never seen after they leave the coast. The young eels ascend the rivers and live for several years in quiet pool-like stretches, where they attain maturity. Only the females journey far inland. The males remain near the mouths of rivers.

Eels feed chiefly at night, on both dead and live animal food. They are most active at night, usually remaining hidden during the day. They are able to travel over short stretches of land. Eels at the University of Minnesota have remained out of water for over 24 hours without apparent injury.

Eels are frequently caught at night on baited hooks. The flesh is considered a delicacy in many sections of the

East. Most of the eels sold commercially in the United States are taken in rivers along the Atlantic Coast.[1]

First Introduction - In July of 1872, 500 eels of unknown sizes were put in a pond on Zion's Cooperative Fish Farm near Salt Lake City. The eels soon disappeared from the pond. In 1874 an eel weighing one and one-half pounds was caught in Utah Lake near the mouth of the Provo River.* To get there, this eel must have traveled downstream to the Jordan River and then upstream into Utah Lake.

Subsequent Introductions - Commissioner A. M. Musser arranged with Seth Green of Rochester, New York, for a shipment of eels in 1887.** Eighty 18 inch eels were received shortly after this, and these were released in the Jordan River.[2] By 1894 several eels had been reported taken from Utah Lake. One specimen 30 inches long was caught by a Mr. Newell of Provo.***

Present Status - American eels are not known to exist in Utah today.

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* Deseret Evening News, September 15, 1874.

** Deseret Evening News, May 28, 1887.

***Deseret Evening News, January 20, 1894.

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2. Musser, A. M. Biennial report of the fish and game commissioner of Utah territory. Salt Lake City, Utah: Jas. B. Bloor, Public Printer, 1895, p. 4.

GOLDFISH

Scientific Name - Carassius auratus.

Common Name - Goldfish.[1]

General - The body of the goldfish is similar to that of its close relative, the carp. It differs from the carp chiefly in dentition and in the absence of barbels. In China, in their native state, goldfish are olivaceous in color. When they are introduced into natural waters they usually revert to this color.[1] The goldfish is characteristically a fish of weedy, sluggish streams or lakes, feeding on vegetation, insect larvae, and crustaceans. It frequently hybridizes with the carp. The goldfish is extremely prolific.[2]

Goldfish have been domesticated in China for many years, and some very elaborate forms have been developed. In a few places in the eastern part of the United States they are used for food, since they reach a weight of several pounds.[1]

First Introduction - Very few details of the one known introduction of goldfish into Utah are available. In the spring of 1889, 47 adult goldfish from the U. S. Fish Commission were received by four applicants in the state.[3] What distribution was made of these is unknown.

It is possible that some introductions of this species may have been made by private owners of domestic goldfish.

Present Status - At this time goldfish are not known to exist in the wild state in Utah.*

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*Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.

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2. Simon, James R. Wyoming fishes. Cheyenne, Wyo.: Wyoming Game and Fish Department, 1946, pp. 68-69.

3. Anonymous. Report of the distribution of fish and eggs from July 1, 1888 to June 30, 1889. Report of the Commissioner of Fish and Fisheries for 1888. Washington, D. C.: Govt. Printing Office, 1892, p. 392.

CARP

Scientific Name - Cyprinus carpio.

Common Names - Carp; German Carp; European Carp; Scale Carp; Mirror Carp; Leather Carp.[1]

General - The carp has a deep compressed body. The head is medium in size, and the mouth is equipped with two pair of barbels. The carp is bluish-green above, shading to yellowish below.[2]

The carp, a native of Asia, was brought to Europe about 1300 A.D., and was introduced into the United States from Europe during the winter of 1876 by Rudolph Hessel.[3] Warm sluggish water is the typical habitat of the carp, but it is adaptable to colder, more actively moving water. Carp are omnivorous feeders, eating some animal material, some plant material, and some debris. They root up the bottom and destroy vegetation to some extent.

Carp are often accused of eating the spawn and disturbing the spawning grounds of other fish. Once established, they are extremely difficult to exterminate. Carp are very prolific, will withstand extremes of temperature, and will survive for short periods of time out of water.[2]

Although universally condemned by sportsmen, this fish has become an important item to commercial fishermen in many parts of the United States. Many millions of pounds of carp are sold annually for food in New York and Chicago. The flesh is also used as mink food, and more recently as fish food in commercial hatcheries.[1]

Three forms of carp are distinguished on the basis of

numbers of scales: Regular carp have the body completely scaled; mirror carp have a partially scaled body; and leather carp have no scales at all.[2] Both the regular and mirror carp are present in Utah.

First Introduction - According to available records the first carp were shipped into Utah in 1881, from the Washington, D. C., U. S. Fish Station. This shipment was ordered by Joseph L. Barfoot and consisted of 130 adult carp. They were distributed among five counties.[4] The names of these five counties are not known. Mr. Barfoot stated at this time that fish culturists would do well to replace worthless varieties of fish with carp.*

Subsequent Introductions - In 1882 a letter from the U. S. Fish Commissioner, indicating that a number of carp shipments would be made to Utah in that year, was received by Commissioner Barfoot.** Subsequently, 200 carp were introduced into the state in that year. They were sent from the Washington, D. C., U. S. Fish Station, and all were in good condition upon arrival. These carp were planted in the following counties: Box Elder 20; Iron 20; Kane 20: Piute 20; Millard 20; Salt Lake 20; Summit 40; and Weber 20.[5] The bodies of water planted are unknown.

According to the Deseret Evening News of February 23, 1883, J. D. M. Crockwell received a shipment of carp, which he distributed to interested parties in Salt Lake City.

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* Deseret Evening News, December 31, 1881.

**Deseret Evening News, February 3, 1882.

Beginning in 1886, large numbers of carp were shipped into Utah. Eleven thousand, nine hundred sixty young carp were planted in 1886, in 20 counties.[6] During 1887, and the first six months of 1888, 14,446 young carp were planted in 27 counties of the state.[7] Between November 7, 1888, and March 6, 1889, 17,400 carp were liberated in 21 counties.[8] All of these carp were obtained from the U. S. Fish Commission. By 1890 favorable results from previous carp introductions were being reported from most counties of the state.

Shipments of carp into Utah were continued by the U. S. Fish Commission until about 1903. From 1890 to 1900 a number of transplants from already established carp populations were made to new areas within the state.*

Present Status - At this time carp are found in all of the major drainage systems of Utah (Figure 10). For the most part they are confined to waters of lower elevation; however, in a number of instances they have successfully invaded some of Utah's best trout waters.

Recently, the State Fish and Game Department has instituted a program to reduce the numbers of carp and other non-game fish in state waters.

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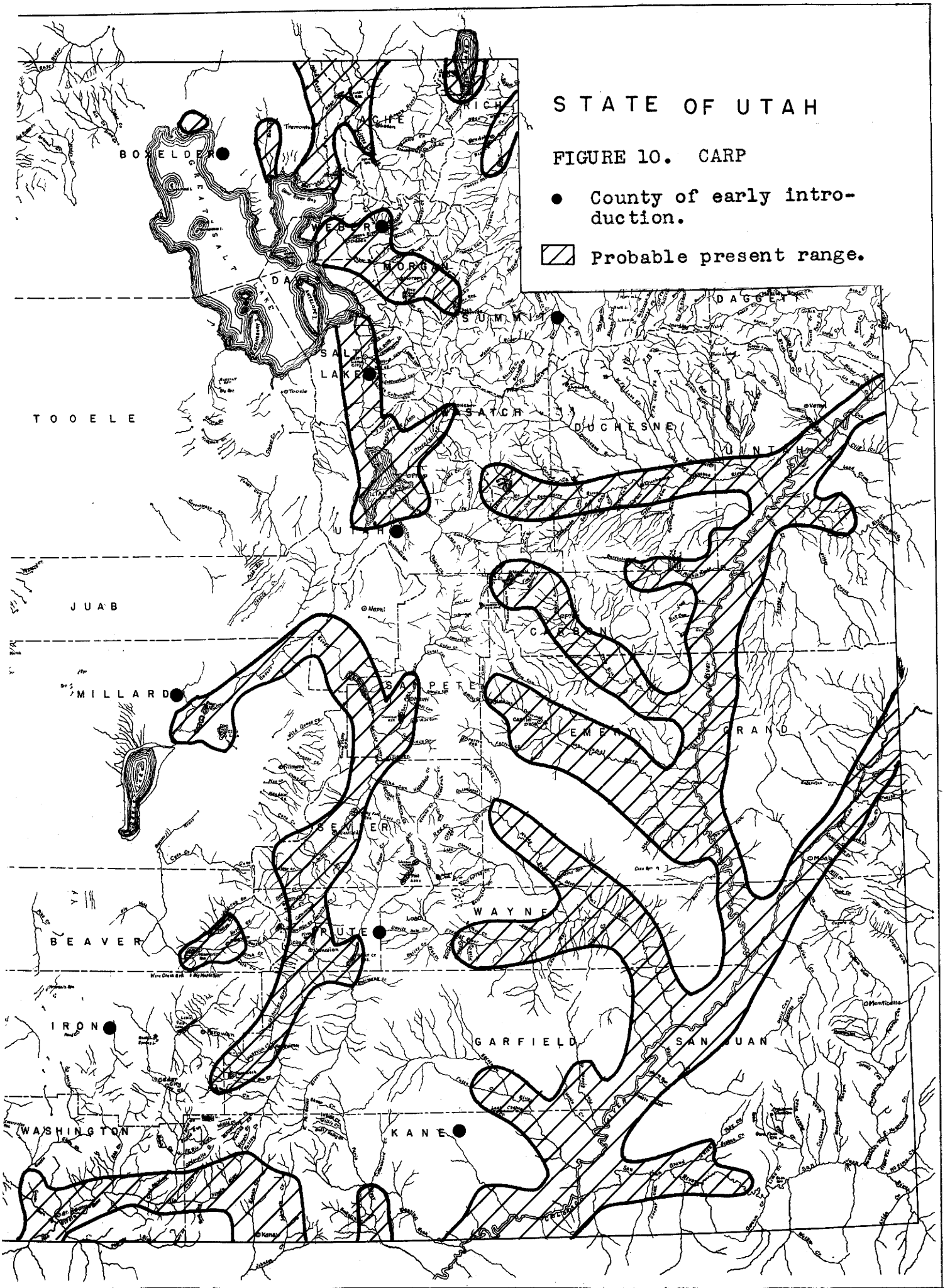
*Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.


STATE OF UTAH
FIGURE 10. CARP
County of early introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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7. Anonymous. Report of the distribution of fish and eggs by the U. S. fish commissioner from July 1, 1887 to June 30, 1888. Report of the Commissioner of Fish and Fisheries for 1887. Washington, D. C.: Govt. Printing Office, 1891, pp. 367-369.

8. Anonymous. Report of the distribution of fish and eggs from July 1, 1888 to June 30, 1889. Report of the Commissioner of Fish and Fisheries for 1888. Washington, D. C.: Govt. Printing Office, 1892, p. 392.

CHANNEL CATFISH

Scientific Name - Ictalurus lacustris.

Common Names - Channel Catfish; Speckled Catfish; Fiddler.[1]

General - The channel catfish has a slender body and a moderately sized head. Stout dorsal and pectoral fin spines are present, and the tail is deeply forked. The mouth is relatively small with long barbels on upper and lower jaws. The color is light bluish-olive, being lighter on the sides and belly. The sides are more or less covered with blue spots.[1] Average adults weigh from 3 to 10 pounds, and some large individuals may reach 25 pounds.

The channel catfish is trimmer and more active than any of the other catfishes. Its preferred habitat is large streams with swiftly flowing currents. The channel catfish is omnivorous, but seems to prefer live minnows, crayfish, and insect larvae.[2] The flesh of the channel catfish is fine, white, and of an excellent flavor.[1]

The channel cat is native to the lakes and streams of the Mississippi River System, south to the Gulf of Mexico. A number of introductions of this species have been made in eastern and western United States.[3]

First Introduction - In 1888 there was some correspondence between the U. S. Fish Commissioner and the Utah Territorial Fish Commissioner concerning the possible introduction of the channel catfish into Utah.* Records of

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*Deseret Evening News, November 19, 1888.

introductions of this species into Utah prior to 1911 are not available, however.

In the summer of 1911, an unknown number of channel catfish from the East were planted in streams tributary to Utah Lake.[4] Detailed records of this introduction are not available.

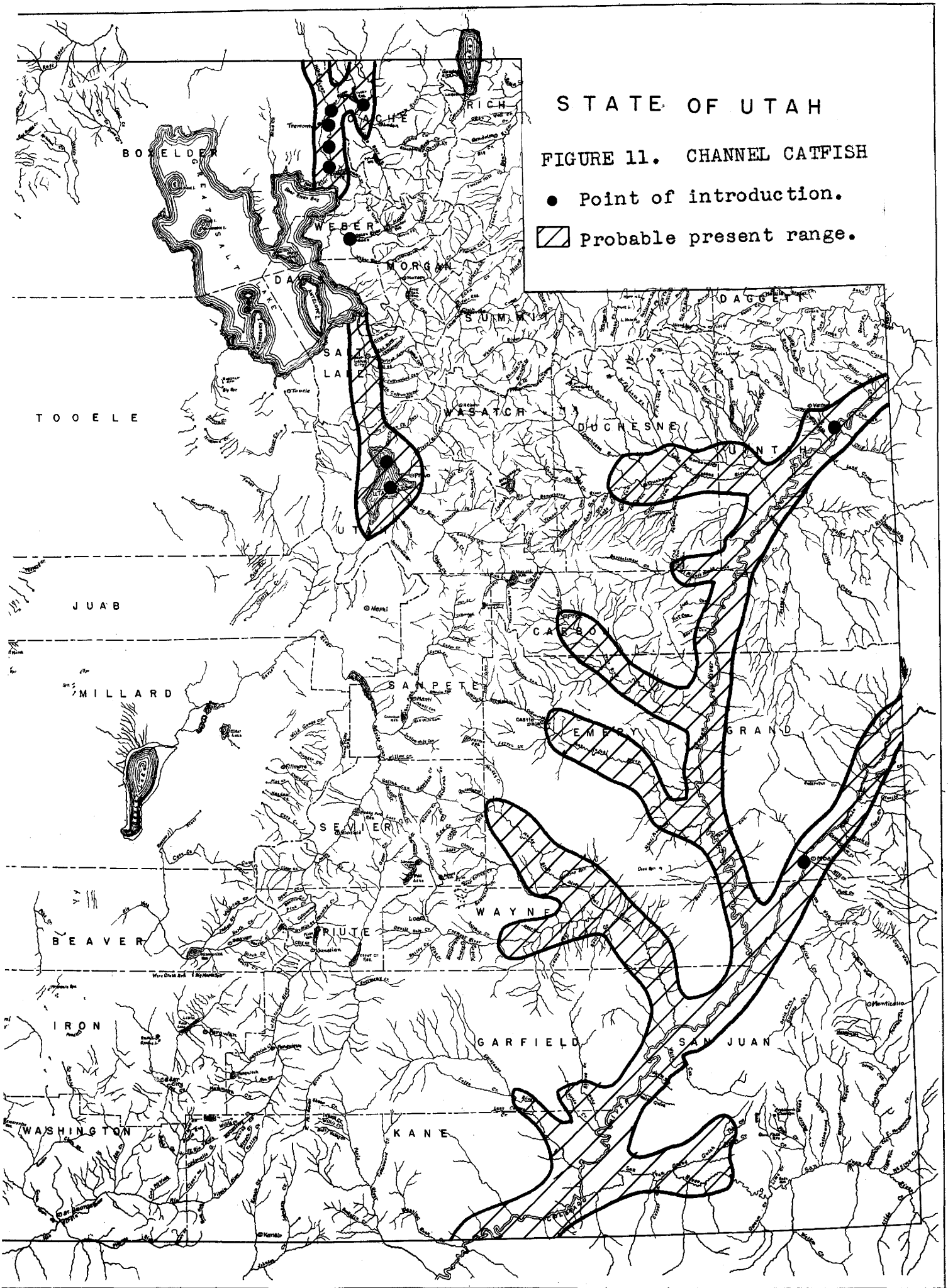
Subsequent Introductions - During 1919 and 1920, shipments of channels from the U. S. Bureau of Fisheries were put in Utah Lake, the Bear River, and the Weber River.[5] The numbers of catfish in these shipments are not known. Another small planting of channel catfish was made in the Bear River in 1924.[6]

In 1932, 200 channel fry were planted in the Bear River, in Box Elder County, and at the same time 80 fry were put in the Bear River, in Cache County. These fry were raised from eggs at the Springville Hatchery.[7] In 1935, 150 channel catfish of assorted sizes were transplanted from the Green River in Uintah County, to the Bear River in Box Elder County.[8] It is believed that recorded introductions of this species into the Green and Colorado Rivers in Wyoming occurred prior to 1930.[3] Records show that the first introduction of channel catfish into these two rivers in Utah took place in 1939. At that time, a number of channels from the Mississippi River were planted in the Green and Colorado Rivers in Uintah and Grand counties.

In 1939, 750 channel catfish of assorted sizes were transplanted from the Green River to Utah Lake by members of the Utah County Wildlife Federation.[9] Since 1939, a number

of Wildlife Federations in the state have made transplants of channel catfish from the Green River to other bodies of water in the state.

Present Status - At this time channel catfish are well established only in the Green and Colorado Rivers (Figure 11). They are, however, showing promise in the Bear River and in Utah Lake.


STATE OF UTAH
FIGURE 11. CHANNEL CATFISH
• Point of introduction.
Probable present range.
BOX ELDER
WEBER
MORGAN
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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BLACK BULLHEAD

Scientific Name - Ameiurus melas.

Common Names - Black Bullhead; Common Bullhead; Horned Pout; Northern Bullhead.[1,2,3]

General - The black bullhead has a moderately deep body and a large flattened head. All members of the family Ameuiridae have smooth scaleless bodies, stout spines in the dorsal and pectoral fins, and barbels on the upper and lower jaws. The black bullhead varies in size from 6 to 15 inches. The body is variable in color, ranging from greenish-brown to black above, to greenish, yellow, or bright yellow below. The sides usually have a greenish to gold luster. A light bar, which is sometimes present, across the base of the caudal fin is a distinguishing character in adults of this species.[1]

The preferred habitats of the black bullhead are shallow lakes and slow-moving streams. This species ranges from North Dakota to northern New York and southward into Kansas and Tennessee. It has been widely introduced into other sections of the United States. Insects, small fishes, molluscs, and crustaceans are high on the food list of the black bullhead.[2]

This bullhead spawns in the spring on shallow sand or mud bottoms, often utilizing a natural depression in which to deposit its eggs. After hatching, the young remain for some time in dense schools attended by the male.[1] The black bullhead is very hardy, propagates rapidly, and does well in many waters unsuited to other species. The palatability of

its flesh, and the ease with which it is captured add greatly to its value. It furnishes good sport in many sections of the United States, especially to youthful fishermen.[2]

First Introduction - It is believed that the first introduction of the black bullhead into Utah took place in 1871. In this year a number of young bullhead fry were put into the Jordan River, in Salt Lake County, by A. P. Rockwood. These bullheads were sent to Mr. Rockwood from the Midwest. In the fall of 1871 several three inch bullheads were reported taken by fishermen from the Jordan River.*

Subsequent Introductions - In 1873 another introduction of black bullhead fry was made into the Jordan River by Mr. Rockwood. During the spring of 1874 several bullheads were taken from the Jordan River.** From this time until about 1893, no further catches of black bullheads are known to have been reported.

In October of 1893, 1,000 black bullheads, ranging in size from 9 to 15 inches, were received in Utah from a Midwest U. S. fish station. These were liberated in Utah Lake by Commissioner A. M. Musser.[4] It was hoped by the commissioner that the introduction of this species would add greatly to the food supply of Utah.*** Several years later anglers began catching black bullheads in Utah Lake.****

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* Deseret Evening News, October 26, 1871.

** Deseret Evening News, May 28, 1874.

*** Deseret Evening News, October 26, 1893.

****Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.

About 1900 commercial fishermen began taking black bullheads from Utah Lake in significant numbers. In 1901, 13,765 pounds were taken and marketed at $ .08 per pound. In 1902, 16,000 pounds were caught and marketed at the same figure.[5] During 1903 and 1904, 110,000 pounds were sold by Utah Lake commercial fishermen.[6]

The State Fish and Game Commissioner recommended a year-round open season on this species in 1909, in view of their rapid increase.[7] In 1914 many thousands of fingerlings from Utah Lake were planted in all counties of the state. At this time black bullheads from several different sections of the state were being marketed commercially.[8]

Licenses to market these fish were still being sold by the State Fish and Game Department in 1924.[9] Shortly after this the black bullhead was raised to the status of a game fish and was protected at certain times of the year.*

Present Status - At the present time the black bullhead has become well established in a number of places in the state (Figure 12). This species has become quite important to sportsmen of the state. It has taken some pressure from trout waters, and probably more important, it has furnished some very enjoyable early spring fishing for Utah anglers.

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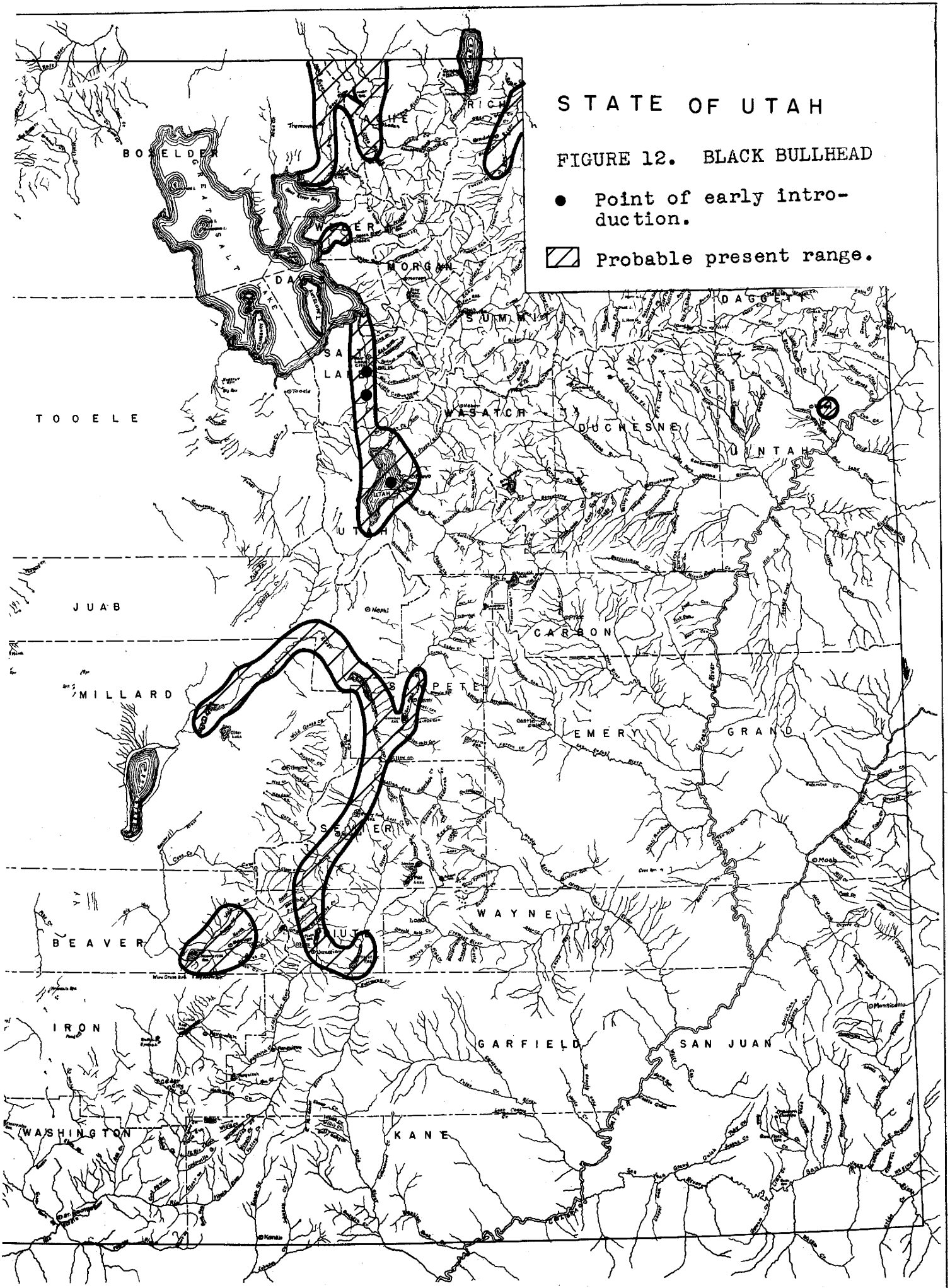
*Information obtained from David H. Madsen, Official, Utah State Fish and Game Dept. (1910-1926), Salt Lake City, Utah.


STATE OF UTAH
FIGURE 12. BLACK BULLHEAD
• Point of early introduction.
Probable present range.
BOX ELDER
TOOELE
JUAB
MILLARD
BEAVER
IRON
WASHINGTON
KANE
GARFIELD
SAN JUAN
WAYNE
EMERY
GRAND
CARBON
DUCHESNE
UINTAH
DAGGETT
SUMMIT
MORGAN
WEBER
SALT LAKE
UTAH
SEVIER
PIUTE
SANPETE
WASATCH
RICH
Great Salt Lake
Nephi
Moab
Monticello
Kanab

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YELLOW PERCH

Scientific Name - Perca flavescens.

Common Names - Yellow Perch; Common Perch; Ringed Perch; Raccoon Perch; Red Perch; Striped Perch.[1,2]

General - The body of the yellow perch is oblong and somewhat compressed, although the back is elevated.[2] This perch is known to vary greatly in color. Usually the dorsal surface is green, and the sides are golden yellow with six to eight broad dark crossbars running from the back to below the middle of the sides. The upper fins are dusky and the lower fins orange to red in the spawning season. The yellow perch reaches a length of 12 to 15 inches and a weight of 1 pound.

Yellow perch are native through southern Canada, south to Kansas, northern Missouri, Illinois, Indiana, Ohio, and into Pennsylvania. They are also native in the Atlantic Drainage from Nova Scotia to South Carolina. They have been widely introduced elsewhere. The yellow perch is chiefly found in lakes and large streams. It is wholly carnivorous, preferring a diet of minnows, but will eat aquatic insects, crayfishes, and other animal matter.[1]

The perch spawns in the spring laying its eggs in long flat gelatinous strings on sandy bottoms or entwined about offshore vegetation. Stunted populations of yellow perch are common. Unless limiting factors are in operation they have a tendency to naturally overstock themselves.[3]

Perch are easily taken on almost any artificial or natural bait. The flesh of the yellow perch is noted for being

especially sweet and delicious.[2]

First Introduction - An 1890 carload shipment of mixed fishes, received in Utah from the Illinois River, contained an unknown number of yellow perch. These fish were sent to A. M. Musser by a Dr. Bartlett of Illinois. About one-fourth of the shipment was put into the Weber River at Ogden and the remainder into Utah Lake.[4]

Subsequent Introductions - In 1891, 636 yellow perch fry from the Midwest were received by A. M. Musser; 436 of these were planted in Utah Lake, and the remaining 200 were put into the Weber River at Ogden.[5] In 1894 yellow perch were reported to be multiplying in Utah Lake.* After this very little was heard of this species for a number of years.

In 1923 a shipment of 175,000 yellow perch fry was distributed among the Bear River, the Jordan River, and Utah Lake.[6] The source of this shipment is unknown. Several thousand yellow perch annually were put into Utah Lake during the summers of 1931, 1932, and 1933. These were sent to Utah from the East by the U. S. Bureau of Fisheries.** In 1932, 5,000 perch from 2 to 6 inches long were planted in the Bear River, in Box Elder County, from the Springville Hatchery.[7]

By 1933 yellow perch had become fairly well established in Utah Lake. It was reported by Dr. Vasco M. Tanner, of Brigham Young University, that the extreme drought of 1934

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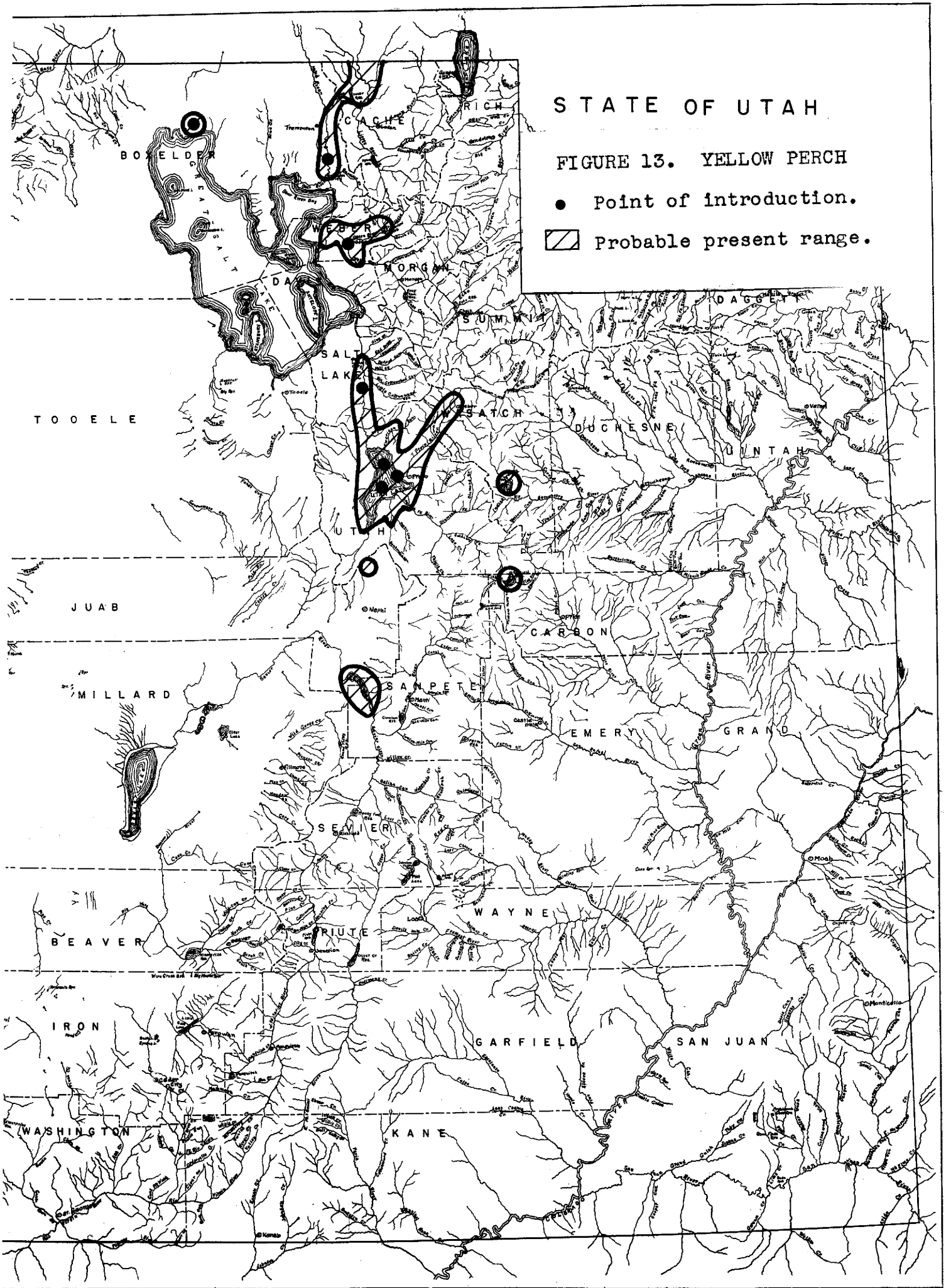
* Deseret Evening News, July 28, 1894.

**Information obtained from Dr. Vasco M. Tanner, Brigham Young University, Provo, Utah.

killed many of the Utah Lake yellow perch. Four thousand adult yellow perch from the Springville Hatchery were distributed among Box Elder, Juab, Sevier, and Utah Counties in 1934. Those planted in Box Elder County at this time were put in Locomotive Springs.[8]

Present Status - The yellow perch is now well established in several sections of the state, so well in fact, that a number of stunted populations have resulted (Figure 13).


STATE OF UTAH
FIGURE 13. YELLOW PERCH
• Point of introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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SMALLMOUTH BLACK BASS

Scientific Name - Micropterus dolomieu.

Common Names - Smallmouth Black Bass; River Bass; Black Bass.[1]

General - The smallmouth black bass is a chunky fish with a large mouth. The mouth, however, does not extend beyond the eye as it does in the largemouth black bass. The color of the smallmouth varies from a dark olive-green flecked with gold above to a pale olive-brown on the sides. The underside is white. The eyes are more or less reddish.

The smallmouth is native from the Lake of the Woods region to Quebec, and southward to northern Alabama and eastern Oklahoma. It has been introduced extensively elsewhere in the United States. Except when feeding, the smallmouth frequents deeper waters than the largemouth. In the winter the smallmouth retires to deep water, where it remains in a semi-dormant state during the winter. The majority of its food is made up of small fishes, although at certain times of the year crayfish and insects are taken.

Smallmouth black bass prefer a clean sand or gravel bottom where there is a noticeable current for spawning. They spawn in the spring, and after the eggs are laid, the nest is diligently guarded by the male.[1] Wherever found in the United States, the smallmouth is very popular with anglers. Many consider it the gamest fish that swims.[2]

First Introduction - So far the smallmouth has received only a token introduction into Utah. During the summer of 1912, 160 adult smallmouth black bass were planted in Spring

Creek, a tributary to Utah Lake. These were sent to Utah from the Midwest by the U. S. Bureau of Fisheries.[3,4]

Subsequent Introductions - In 1914, 600 fingerlings, shipped into Utah by the U. S. Bureau of Fisheries, were liberated in Spring Lake in Utah County.[5] Fifty adult smallmouths from the East were planted in Spring Creek in Cache County in 1915 by the U. S. Bureau of Fisheries.[6] So far as is known, no favorable reports have been received from any of these introductions.

Present Status - This species is not known to be present in Utah today.

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LARGEMOUTH BLACK BASS

Scientific Name - Micropterus salmoides.

Common Names - Largemouth Black Bass; Largemouth; Bigmouth; Straw Bass; Green Trout; Green Bass.[1]

General - The largemouth black bass has a chunky body and an exceptionally large mouth. The upper jaw extends to a position below the hind margin of the eye. The dorsal surface is olive-green to dark green, and the sides have almost a brassy lustre. A dark green to black lateral stripe is present. The underparts are whitish to yellow blending into the brassy sides.[2]

The largemouth is native to that part of the United States east of the Rocky Mountains from Canada southward to Florida and Mexico. It has been widely introduced into other parts of North America. This bass is found chiefly in lakes and larger streams throughout its range. The principle foods of the largemouth are insects, small fishes, crayfish, and frogs.[3]

The largemouth black bass spawns in the spring from May into July; its eggs are layed in redds about three feet in diameter on sand or gravel bottoms. The nests are prepared and guarded by the male even after the eggs are layed. The fry remain in schools attended by the male until after the yolk sac is absorbed.[2]

The largemouth is, without doubt, one of the most popular game fishes in the United States. These bass can be taken on artificial as well as natural baits, and when hooked, they provide the angler with plenty of action.

First Introduction - The largemouth black bass was first introduced into Utah on September 8, 1890. On this date a mixed carload of largemouth black bass, perch, crappies and sunfish was received in Utah. These fish were seined from the Illinois River Bottoms and were sent by a Dr. Bartlett. There were estimated to be about 2,000 largemouths of various sizes in the carload. About one-fourth of this shipment was put into the Weber River at Ogden, and the remainder into Utah Lake.[4] After this introduction the taking of bass in Utah waters was prohibited by law for three years.[5] So far as is known, no results were reported from the Weber River planting.

Subsequent Introductions - In 1891, 1,700 largemouth fry were received from the U. S. Bureau of Fisheries, and these were released in Utah Lake.[6] State Fish and Game Warden, A. M. Musser, reported the bass to be doing well in Utah Lake in 1892. In 1893 the largemouth black bass season was opened and a few specimens, the largest weighing three pounds, were taken from Utah Lake.

During 1894 largemouths were taken regularly from Utah Lake for domestic and commercial use. Besides those taken for transplanting purposes, about 30,000 pounds were taken by commercial fishermen. During this year many were transplanted from Utah Lake to other waters in the state.[4] In 1895, 100 adult largemouth black bass were planted in Utah Lake by a representative of the U. S. Fish Commission.[7] About 2,000 spawners from Utah Lake were furnished to private individuals in the state for stocking purposes in 1895.

Commercial fishermen took 32,000 pounds of bass from Utah Lake during 1895. These were sold at $ .12 per pound.[8] About 10,000 adult bass from Utah Lake were planted throughout the state in 1896 and 1897. This large-scale transplanting program was continued during 1898 and 1899. Sixty-one thousand pounds were sold by Utah Lake commercial fishermen during 1897 and 1898. A shipment of 5,000 largemouth fry from Utah County was sent to Colorado in 1898.[5]

By 1902 the annual take of largemouth bass by Utah Lake commercial fishermen had decreased noticeably. It was believed by John Sharp, State Fish and Game Commissioner, that the lowering of Utah Lake had greatly decreased the spawning grounds of these fish.[7] In 1905 John Sharp reported that the numbers of largemouth black bass in Utah Lake had greatly decreased, and he strongly urged the providing of protected spawning areas. Reports from Cache and Box Elder Counties indicated that this species was doing well in the Bear River at this time.[10]

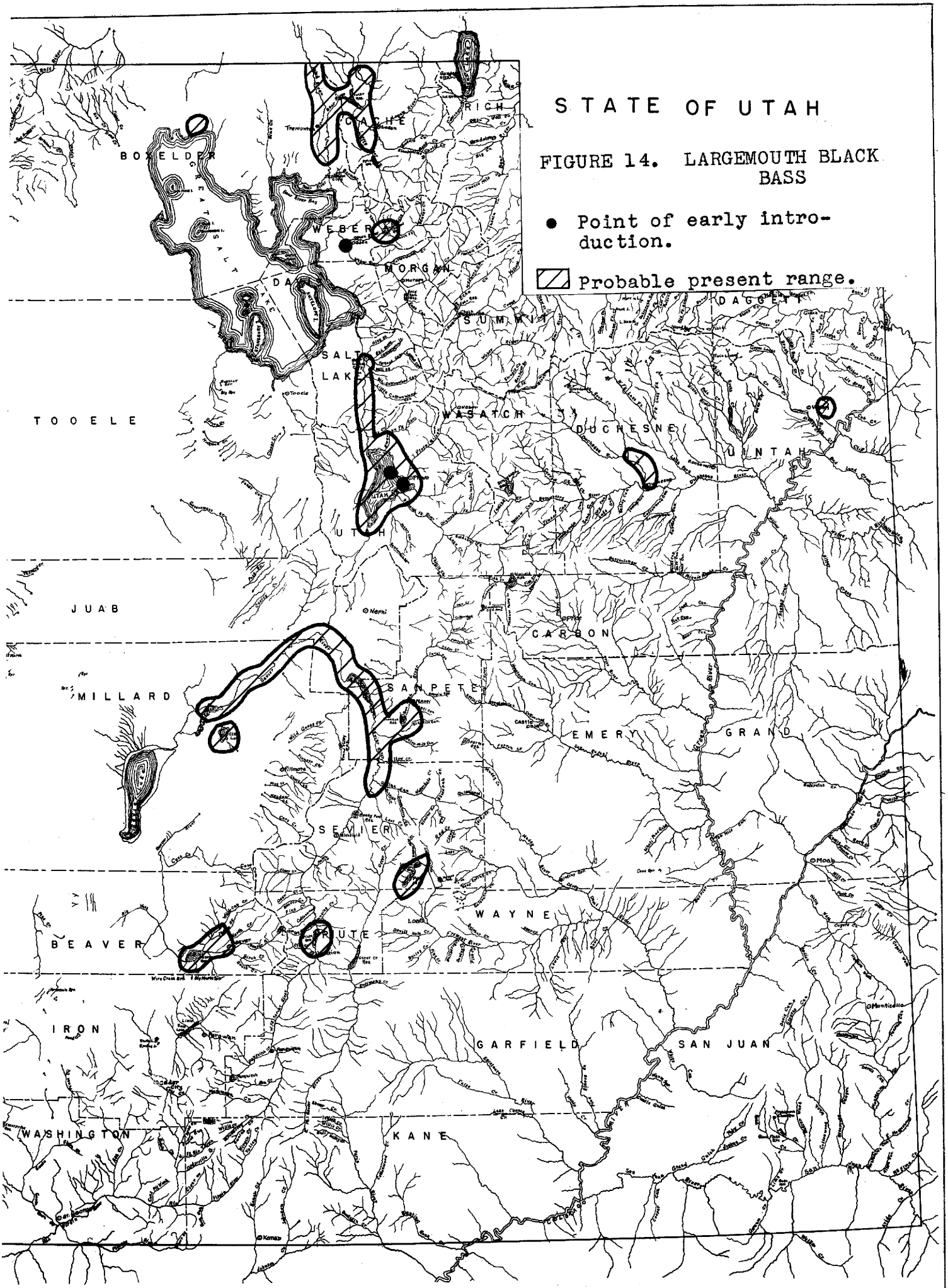
In 1909 Powells Slough, near Utah Lake, was set aside as a natural bass hatchery. This was stocked each year with spawners seined from the lake.[11] In 1912, 5,000,000 fry were hatched in Powells Slough, and a number of these were transplanted to other waters. At this time Utah Lake was quite famous for its bass fishing.[12]

The last year that Powells Slough was maintained as a natural largemouth bass hatchery was 1913.[13]

From 1913 to 1930 very little attention was paid to the propagation of black bass in Utah. In 1930 Locomotive Springs

in Box Elder County were purchased by the state and stocked with largemouths. A few hundred fingerlings were distributed to applicants from the Whiterock Hatchery in 1931.[14] From this time until the present, most of the largemouth black bass planted in waters of the state have come from the Springville, U. S. Fish Station. In the past 10 years a number of farm fish ponds have been planted with bass from this hatchery.

Present Status - At the present time the largemouth black bass is generally confined to waters of lower elevation in Utah (Figure 14). Good bass fishing is found in only three or four places in the state. The recent interest in farm fish ponds may help to establish this species in new areas.


STATE OF UTAH
FIGURE 14. LARGEMOUTH BLACK BASS
• Point of early introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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GREEN SUNFISH

Scientific Name - Lepomis cyanellus.

Common Names - Green Sunfish; Blue-Spotted Sunfish.[1]

General - The green sunfish has a moderately deep body, compressed laterally. The general color is yellowish-green, darker dorsally, and shading into almost orange below. The eye is a bright red. This species can be identified by the black opercular spot which covers only the bony part of the operculum.[2]

This little sunfish is native west of the Alleghanies, and from the Great Lakes to Mexico. It has been widely introduced elsewhere in the United States.[1] The green sunfish feeds chiefly on small forage fishes, insects, and insect larvae. It is found chiefly in lakes ponds, and slow moving streams at low elevations.[2] The green sunfish spawns in early summer.[3]

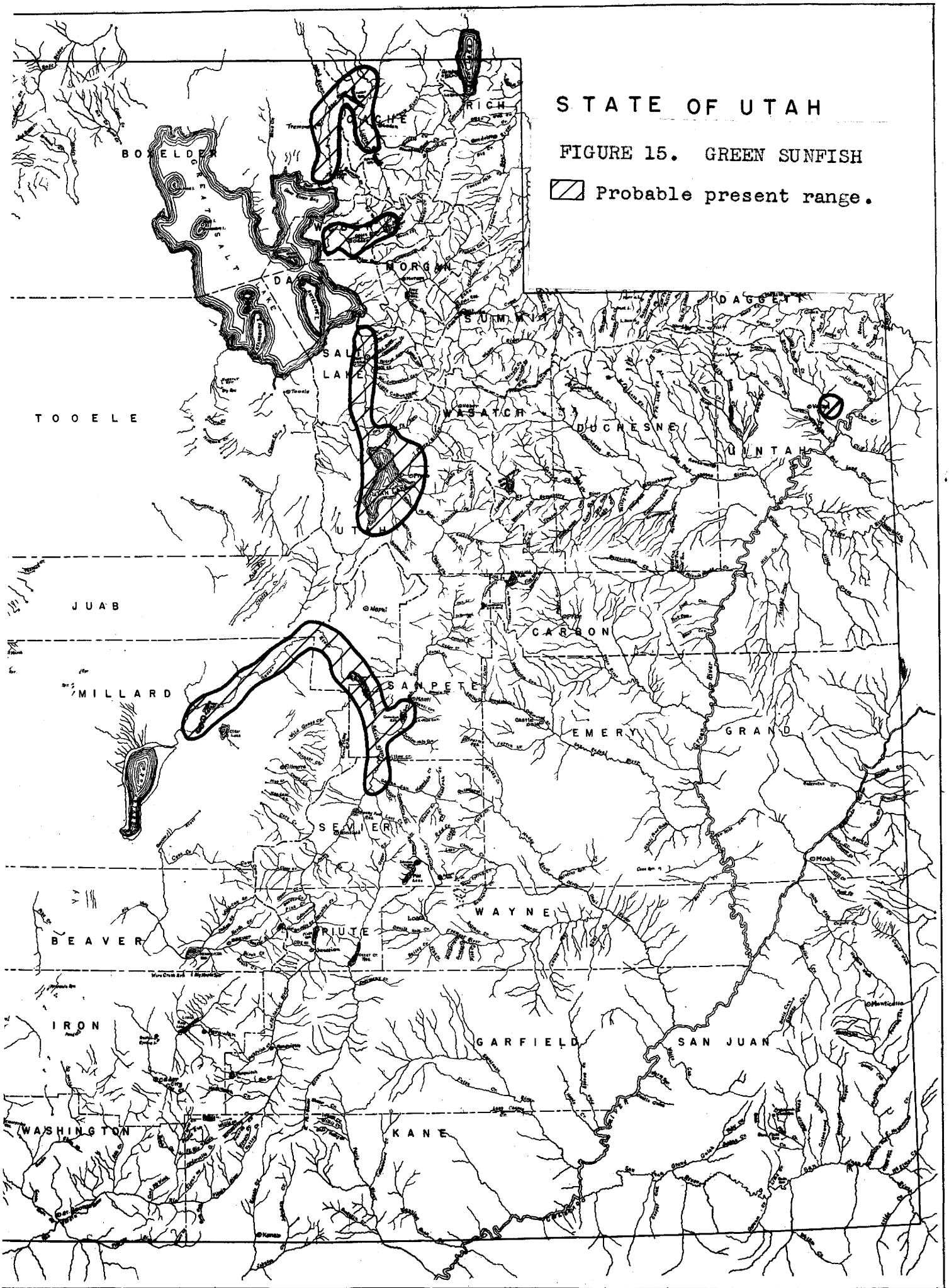
The green sunfish is an excellent, though small, panfish, and is a great favorite with younger fishermen. It is quite gamy when hooked and will rise to a fly.[2] Many introductions and transplants of the green sunfish have been made under the impression that it was the bluegill.[3]

First Introduction - According to available records the green sunfish was probably first introduced into Utah in 1890, in a mixed carload shipment of fishes from the Illinois River. These were introduced into the Weber River at Ogden and into Utah Lake.[4] The results of this introduction are not known.

Subsequent Introductions - Between 1931 and 1940, 45,385

"sunfish" fry were planted in Utah waters by the U. S. Bureau of Fisheries.[5,6,7,8,9] During this period both green sunfish and bluegills were distributed as "sunfish" by the U. S. Bureau of Fisheries. A number of these introductions were undoubtedly successful as green sunfish are now commonly found in waters at lower elevations in the state.

Present Status - Because of its small size, the green sunfish is considered to be a nuisance in many of the places where it is found in Utah today (Figure 15).


STATE OF UTAH
FIGURE 15. GREEN SUNFISH
Probable present range.
BOX ELDER
RICH
CACHE
MORGAN
SUMMIT
DAGGETT
SALT LAKE
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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BLUEGILL

Scientific Name - Lepomis machrochirus.

Common Names - Bluegill; Redbreasted Sunfish; Blue Bream; Blue Sunfish; Copper-Nosed Sunfish; Dollardee.[1]

General - The bluegill has a very deep body, greatly compressed laterally. The mouth is small. The bluegill is greenish-yellow above, shading to orange or orange-red below. The lower sides of the head and opercle are blue.[2] This species may be distinguished by a black spot above the base of the posterior dorsal fin, and by short black opercular lobes on the gill covering.[3] The bluegill is the largest of the genus Lepomis. It frequently attains a length of 12 to 14 inches and a weight of 1½ pounds.

This species is native throughout the Great Lakes and in the Mississippi Valley, from western New York and Pennsylvania to Iowa and Missouri, and from Minnesota to Florida and the Rio Grande. It has been widely introduced into other sections of North America. Though found in quiet streams, the bluegill is chiefly a fish of ponds and lakes.[1] It feeds on molluscs, crustaceans, insect larvae, and occasionally on small fishes and aquatic plants.[2]

The bluegill spawns from May until August. They frequently move about in schools and usually have their nests close together. The bluegill is an excellent panfish, for the meat is sweet and relatively free from bones. It is very popular with fishermen, as it bites readily and puts up a strenuous fight when hooked.[3]

First Introduction - It is possible that bluegills may

have been present in the mixed carload shipment of fishes from the Illinois River which were received in Utah in 1890. The report of this introduction indicates that a number of sunfishes were included, and it is possible that bluegills may have been among these. The fish in this shipment were planted in the Weber River and in Utah Lake.[4]

Subsequent Introductions - Bluegills were reported to be common throughout the state in sloughs and ponds in 1915.[5] In view of this it is possible that some introductions, of which the details are unknown, occurred between 1890 and 1915.

In 1934, 4,100 bluegill fingerlings, from the Springville Hatchery, were planted in Locomotive Springs in Box Elder County.[6] Arnold Christensen, Box Elder County Warden, reports that since this time bluegills are taken occasionally by fishermen at Locomotive Springs.

In 1935 the Springville, Utah, U. S. Fish Station began the distribution of bluegills to applicants in the state. Since this time many thousands of bluegills have been planted in both public and private waters of the state.* Recently this species has been very much in demand for planting in farm fish ponds.

Present Status - At this time bluegills are found in many waters at lower elevations in the state (Figure 16). They are reported to be doing well in many farm fish ponds.*

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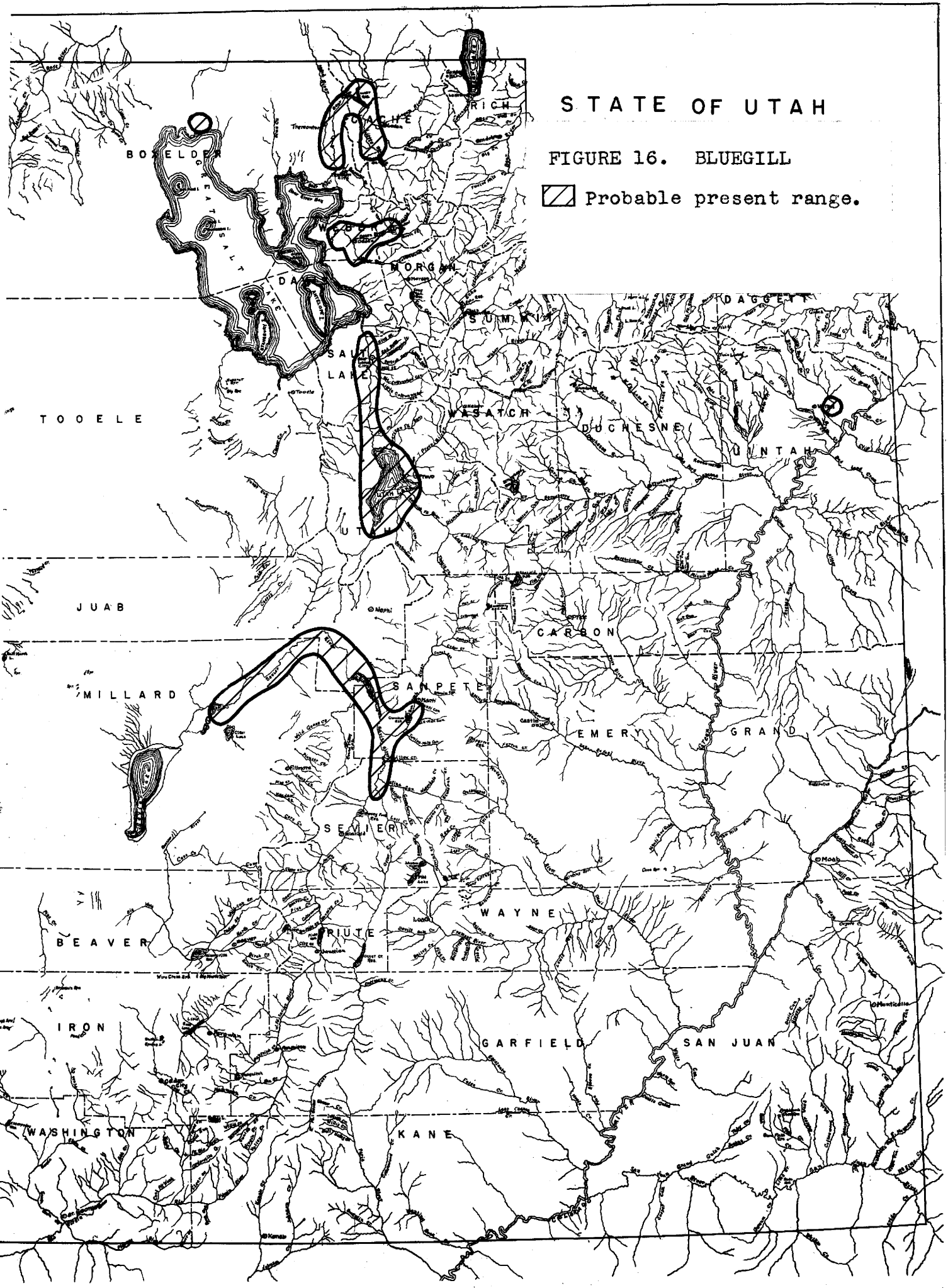
*Information obtained from Fred Richins, Superintendent, Springville, Utah, U. S. Fish Station.


STATE OF UTAH
FIGURE 16. BLUEGILL
Probable present range.
BOX ELDER
RICH
CACHE
MORGAN
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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ROCK BASS

Scientific Name - Ambloplites rupestris.

Common Names - Rock Bass; Northern Rock Bass; Redeye; Goggle-eye.[1]

General - The rock bass has a moderately short body somewhat compressed laterally. The back is considerably elevated and the forehead is rounded. The back and sides are usually an olive-brown color and each scale has a dark spot. The eye is more or less red. The rock bass reaches a length of 8 to 10 inches and a weight of 1 pound.[1]

This species is native from Vermont and New York westward to Manitoba and south to Louisiana and Texas. It is found in lakes, ponds, and streams but shows a preference for clear cold water. Small minnows, insects, and crustaceans make up the bulk of its diet.[2]

The rock bass spawns in the spring on gravel beds or sand beds. In parts of the Mississippi River Drainage this species has some importance as a game fish. Rock bass bite readily on minnows, grasshoppers, and worms.[1] This species has been handled in the past by the U. S. Bureau of Fisheries, through whose efforts it has been introduced into many waters of the United States.[2]

First Introduction - According to records the first introduction of this species into Utah was made in 1896, when 190 adult rock bass were planted in the Bear River near Brigham City. These were planted by a representative of the U. S. Fish Commission.[3] No records of any of these being taken from the Bear River are available.

Subsequent Introductions - In 1909, 150 fingerling rock bass were planted in Gifford Spring, near Lund, in Iron County. These were sent to Utah from the East by the U. S. Bureau of Fisheries.[4] In the following year 200 fingerlings were liberated in Bur Oak Spring in this same area. These were also shipped into the state from the East by the U. S. Bureau of Fisheries.[5] The results of these two introductions are not known.

In 1914, 200 rock bass fingerlings were put in McComie's Pond near Ogden.[6] In 1916 another planting of 200 fingerlings was made in a spring pond near Murray.[7] Available records do not indicate the results of either of these plantings.

Present Status - The rock bass is not known to exist in Utah today.*

---

*Information obtained from M. J. Madsen, Utah State Fish and Game Dept., Salt Lake City, Utah.

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7. O'Malley, Henry. The distribution of fish and fish eggs during the fiscal year 1916. Bureau of Fisheries Doc. No. 837, 1916, p. 78.

BLACK CRAPPIE

Scientific Name - Pomoxis nigro maculatus.

Common Names - Black Crappie; Calico Bass; Strawberry Bass; Grass Bass.[1]

General - The black crappie is somewhat elliptical in shape, though elongated and much compressed laterally. The forehead is somewhat dished, but usually not as much as in the white crappie. The color is more or less silvery with numerous dark green splotches throughout. The black crappie reaches a length of 12 inches and a weight of 2 pounds.[1]

The black crappie is common in lakes and streams over most of eastern United States and southern Canada. It has been introduced and has done well in many other sections of North America.[2] In general it is much more common and widespread than the white crappie. Black crappies spawn in May or June on soft sandy or muddy bottoms. They feed on aquatic insects, crustaceans, and small minnows.

Black crappies rank high as both pan and game fishes in many sections of North America. They are commonly taken on live minnows and will frequently rise to a fly.[1]

First Introduction - The black crappie was first introduced into Utah in 1890 in a carload shipment of fishes from the Illinois River Bottoms. One-fourth of these were put into the Weber River at Ogden, and the remainder were put into Utah Lake.[3] No early reports of black crappies being taken in either of these places are available.

Subsequent Introductions - In 1895, 25 adult black crappies were put into Utah Lake by A. M. Musser. These were

sent to Utah by the U. S. Fish Commission.[4] The source of this shipment is unknown. From this time until 1930, little was heard of this species in Utah.

During 1931, 1932, and 1933, several thousand young crappies were planted in Utah Lake at the mouth of the Provo River. These were sent to Utah from the East by the U. S. Bureau of Fisheries. Many of these were known to have died during the extreme drought of 1934.* Since this time crappies have occasionally been taken from Utah Lake.

In 1934, 190 adult crappies were put in Locomotive Springs in Box Elder County. These were raised at the Springville Hatchery.[5] Arnold Christensen, Box Elder County Warden, reports that a few of these are still present in Locomotive Springs.

Thirty two thousand legal sized crappies from the Murray Hatchery were planted, 26,500 in Salt Lake County and 5,500 in Tooele County in 1939. Details of these plantings are not available.[6]

Present Status - At the present time black crappies are found in only a few places in Utah (Figure 17). Because of the interest in farm fish ponds it is possible that some unknown introductions of this species may have been made recently.

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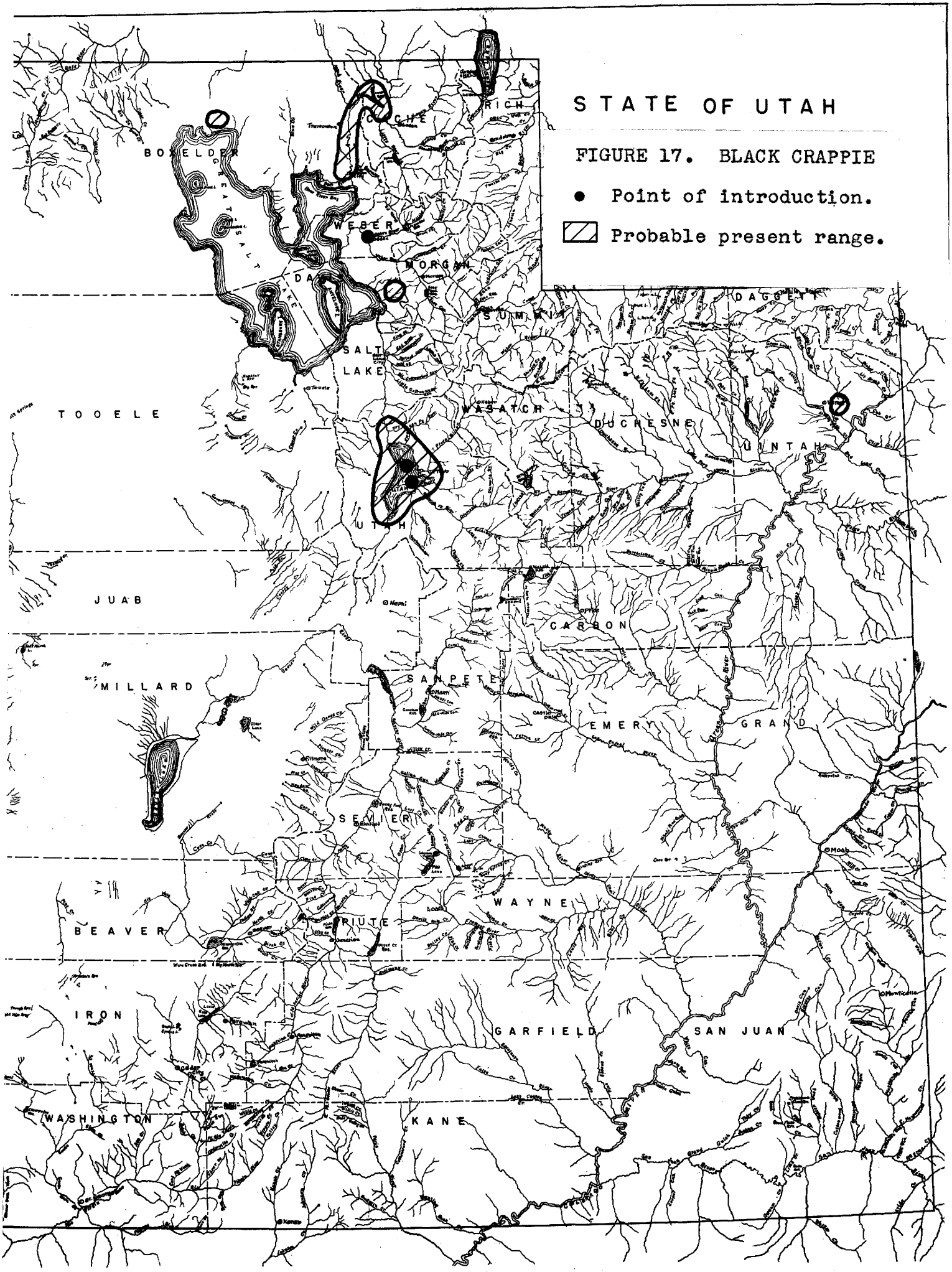
*Information obtained from Dr. Vasco M. Tanner, Brigham Young University, Provo, Utah.


STATE OF UTAH
FIGURE 17. BLACK CRAPPIE
• Point of introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
GREAT SALT LAKE
SUMMIT
DAGGETT
SALT LAKE
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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GAME BIRDS

Introduction

When the Mormon pioneers first came to Utah they found members of the grouse family in great abundance. The dusky grouse, the ruffed grouse, the prairie chicken, the sharp-tailed grouse, and the sage hen frequently graced pioneer tables. The opening of the land to agriculture removed much of the natural habitat of these native birds. This, along with continued shooting, reduced the numbers of native game birds, and, as early as 1870, a few far-sighted individuals could see that protective measures would be necessary to preserve these species. The sharp reduction in numbers of native game birds prompted some sportsmen to attempt the introduction of species exotic to the state. The accounts of these introductions are of interest and importance to sportsmen and game managers today.

The desire of sportsmen to find birds which would furnish good upland shooting was the major factor in almost all of the exotic game bird introductions into Utah.

HUNGARIAN PARTRIDGE

Scientific Name - Perdix perdix.[1]

Common Names - Hungarian Partridge; European Partridge; Hun.[1]

General - The Hungarian or European partridge, almost universally known as the "Hun", is intermediate in size between the quail and the pheasant. It is a grayish bird with chestnut colored markings. When in flight, it can be distinguished from other Utah gallinaceous birds by its size and by its chestnut tail. The sexes are alike in color except that the females are somewhat duller than the males.

It was introduced into North America from its native European home and has established itself in many sections of the United States and Canada. Agricultural land or adjacent areas seem to be its preferred habitats in the United States. The food of the Hungarian partridge consists chiefly of wild and domestic grains and berries.

In many sections of North America this plump-bodied little European bird has become a favorite with upland bird shooters. It is an exceptionally fast flyer and gets away with almost incredible speed when flushed.[1,2]

First Introduction - The success of introductions of the "Hun" in other parts of North America prompted the State Fish and Game Department to attempt to establish this bird in Utah. On November 11, 1911, 120 Hungarian partridges were brought into Utah from Canada. These were distributed as follows: Cache County 4; Salt Lake County 34; Sevier County 8; Tooele County 4; Utah County 34; Washington County 8; and

Weber County 28. The sex and age composition and condition of these groups of birds at the time of release are unknown. In the fall of 1912 those released in Sevier, Utah, Salt Lake, and Tooele Counties were reported to be doing well.[3] A 1914 report indicated that the "Huns" liberated in the above-mentioned counties were still showing promise.[4] Lee Vest, State Game Warden, reports that these birds were quite numerous in 1915 in Utah County.

Subsequent Introductions - In April of 1917, six pair of Hungarians were planted in the fields near Santa Clara, Washington County.[5] The details of this planting are not available. Another introduction of three pair of "Huns", of which the particulars are unknown, was made in 1920, in the vicinity of St. George, by Sherman Hardy.* No favorable results were reported from these introductions.

In 1923 the State Fish and Game Department introduced 200 pairs of these partridges into the state. These were released in Sevier, Uintah, Utah, Salt Lake, and Tooele Counties, where earlier introductions had shown promise.[6] The source from which these birds were obtained and their condition at the time of release are unknown. Late in 1923, a covey of "Huns" was reported to be doing well near the Jordan Narrows in Salt Lake County.[5] By 1928 only two small colonies, one in Utah and one in Uintah County, were known to have survived from the 1923 planting of 200 pairs.[7]

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*Information obtained from Oliver Stratton, State Fish and Game Warden, St. George, Utah.

The Utah Cooperative Wildlife Research Unit files indicate that a covey of 12 to 15 Hungarians had been liberated near Santa Clara in Washington County in 1925 by an unknown party.

In 1938, 50 of these partridges were released just east of Richfield by Elwin Cloward, State Game Warden. In 1939 another plant of 50 "Huns" was made in this same area. The birds in both cases were obtained from Alberta, Canada and were in very poor condition at the time of release.* In 1943 one pair of "Huns" was liberated on the outskirts of Ogden by Charles Story, a Weber County sportsman.**

Undoubtedly the greatest population of Hungarian partridges in Utah today is found in Box Elder County. According to Earl Anderson, President of the Box Elder Wildlife Federation, there have never been any artificial introductions of this species into that county. Hungarian partridges began to drift into northern Box Elder County from southern Idaho where plants had been made in the late 1930's. At the same time "Huns" from Nevada introductions began to move into the western part of the county.

In 1940 approximately 75 "Huns" were observed on Pilot Mountain, southwest of Lucin, by members of the Box Elder Wildlife Federation. Since this time Hungarians have been

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* Utah Cooperative Wildlife Research Unit files.

**Information obtained from Boyd C. Carver, State Fish and Game Warden, Eden, Utah.

reported from almost all parts of Box Elder County.* A covey of 24 "Huns" was observed southeast of Park Valley in January of 1948 by O. W. Morris of the U. S. Fish and Wildlife Service. Another observation of 29 partridges was made in early December of 1948 on Promontory Point by Dr. Jessop B. Low, Leader of the Utah Cooperative Wildlife Research Unit.

Present Status - At the present time the status of the Hungarian partridge in the state as a whole is precarious. In only three or four areas have they shown any ability to establish themselves (Figure 18). However, the encouraging reports from Box Elder County indicate that these birds may have possibilities of becoming important upland game birds in Utah.

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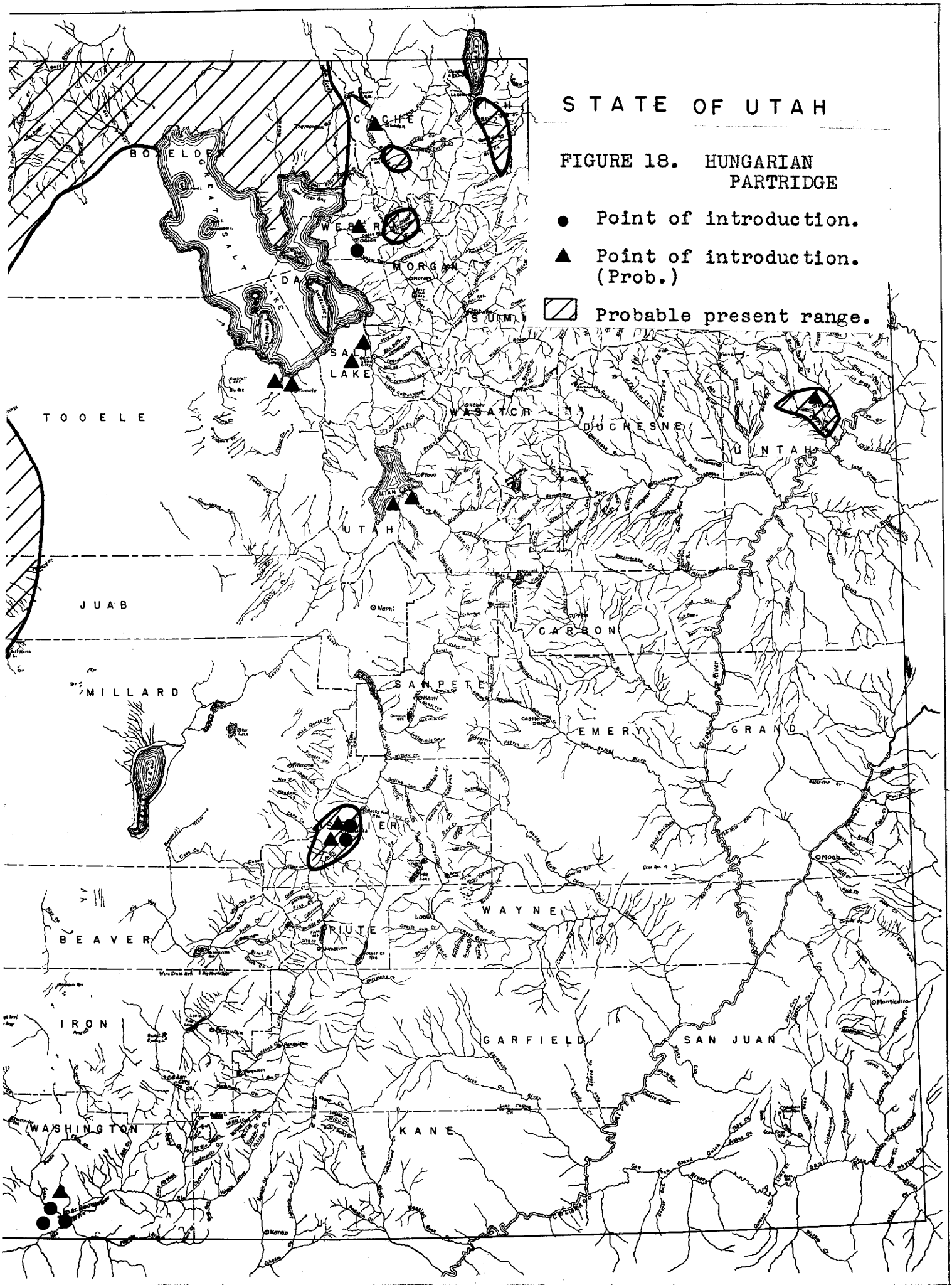
*Information obtained from Earl Anderson, President, Box Elder Wildlife Federation, Brigham City, Utah.


STATE OF UTAH
FIGURE 18. HUNGARIAN PARTRIDGE
Point of introduction.
Point of introduction. (Prob.)
Probable present range.
BOX ELDER
CACHE
WEBER
MORGAN
DAVIS
SUMMIT
SALT LAKE
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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CHUKAR PARTRIDGE

Scientific Name - Alectoris graeca chukar.[1]

Common Names - Chukar Partridge; Chukar; Red-Legged Partridge; Indian Partridge.[1]

General - The chukar partridge is intermediate in size between the California quail and the pheasant.[2] The sexes are alike in plumage, but the male may be distinguished by having a blunt spur on each leg. The dorsal surface and the breast are plain gray without any markings. The throat is white or buff, surrounded by a black band. The lower parts below the breast are buff, and the flanks are beautifully banded vertically with gray, buff, black, and chestnut. The bill, legs, and eyelids are red, and the eyes themselves orange.[3]

The chukar partridge is native to inner Mongolia, Tibet, India, Arabia, Egypt, Asia Minor, and southern Europe. The term chukar is commonly applied to only one species of the genus Alectoris, this being the species Alectoris graeca, which includes 22 subspecies. The subspecies of the chukar imported into the United States is the Indian variety Alectoris graeca chukar. The first introduction of this species into the United States occurred in 1893.[1]

The chukar partridge makes its home in its native land in cultivated fields, along streams, and in barren hilly areas. It is commonly found in the foothills of the Himalayas, and ranges upward to the timberline, following the snow line down as the season advances.[2] So far in North America the chukars are apparently doing best in the drier

regions of the West.

So far as is known, no extensive studies of the food habits of these birds have been made. In captivity they do well on diets fed to quail. In feeding they do a great deal of scratching and turning over of debris.

Many of the states have made attempts to introduce the chukar. Most of these attempts have been made so recently that it is unsafe to predict their outcome.[1]

First Introduction - In 1935 the Box Elder Wildlife Federation purchased 300 chukar partridge eggs at a game farm in California, and these were sent to the Springville Game Farm. In 1936, 76 of the resulting chukars were released in Box Elder County; 5 of these were planted just east of Brigham City, 8 were planted east of Mantua, and the remaining 63 were released on the Connor Springs Ranch. Those planted near Brigham City were seen for the last time during the winter of 1936. Those liberated at Mantua were not reported at all. Of the 63 planted on the Connor Springs Ranch, 12 survived the ensuing winter, and these disappeared during the following summer.*

Subsequent Introductions - In 1937 William Whitney, manager of the Springville Game Farm, was sent to California to investigate recent methods in the artificial propagation of the chukar partridge.**

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* Information obtained from Earl Anderson, President, Box Elder Wildlife Federation, Brigham City, Utah.

**Deseret Evening News, April 18, 1937.

In 1938, 50 chukars from the Springville Game Farm were released in the foothills east of Brigham City. These were reported for the last time in January of 1939.* Four pair were planted in the foothills west of Cedar City in 1938. By 1941 these had increased to about 25 birds and had moved approximately 24 miles northwest of the point where they were released. They have not been reported since.**

The Winchester Cartridge Company delivered 100 chukar partridges to the State Fish and Game Department on May 1, 1940. These were planted in Sevier, Davis, Utah, and Box Elder Counties.[4] Birds were seen in all of these counties until the spring of 1941, after which they were not reported.* During the years 1940 and 1941, 96 chukars from the Springville Game Farm were released in Washington County: 38 of these were planted just south of St. George on November 17, 1940; 15 were released on Santa Clara Creek on August 13, 1941; 15 were planted at Gunlock on August 14, 1941; and 28 were liberated at Berry Springs just southwest of Hurricane on August 16, 1941. Birds from each of the above plants were seen for approximately one year after release, but were not reported after that.**

The Weber County Wildlife Federation released 46 chukars at Arsenal Springs, near the mouth of Weber Canyon, in the fall of 1941. None of these was reported after the early

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* Utah Cooperative Wildlife Research Unit files.

**Information obtained from Oliver Stratton, State Fish and Game Warden, St. George, Utah.

spring of 1942.*

In 1946 a few chukars were released at Price. These stayed close to the State Game Farm there for about a year and then apparently disappeared.** During the spring of 1947, 100 of these birds were planted in Box Elder County. Fifty were released at Mantua, and 50 just east of Deweyville. These were purchased by the Box Elder Wildlife Federation and were in apparently good condition at release. At this writing birds from both of these plants are known to be doing well.***

Present Status - Until 1947 very little success has followed introductions of the chukar partridge into Utah. At the present time the only known surviving chukars are found in southeastern Box Elder County (Figure 19).

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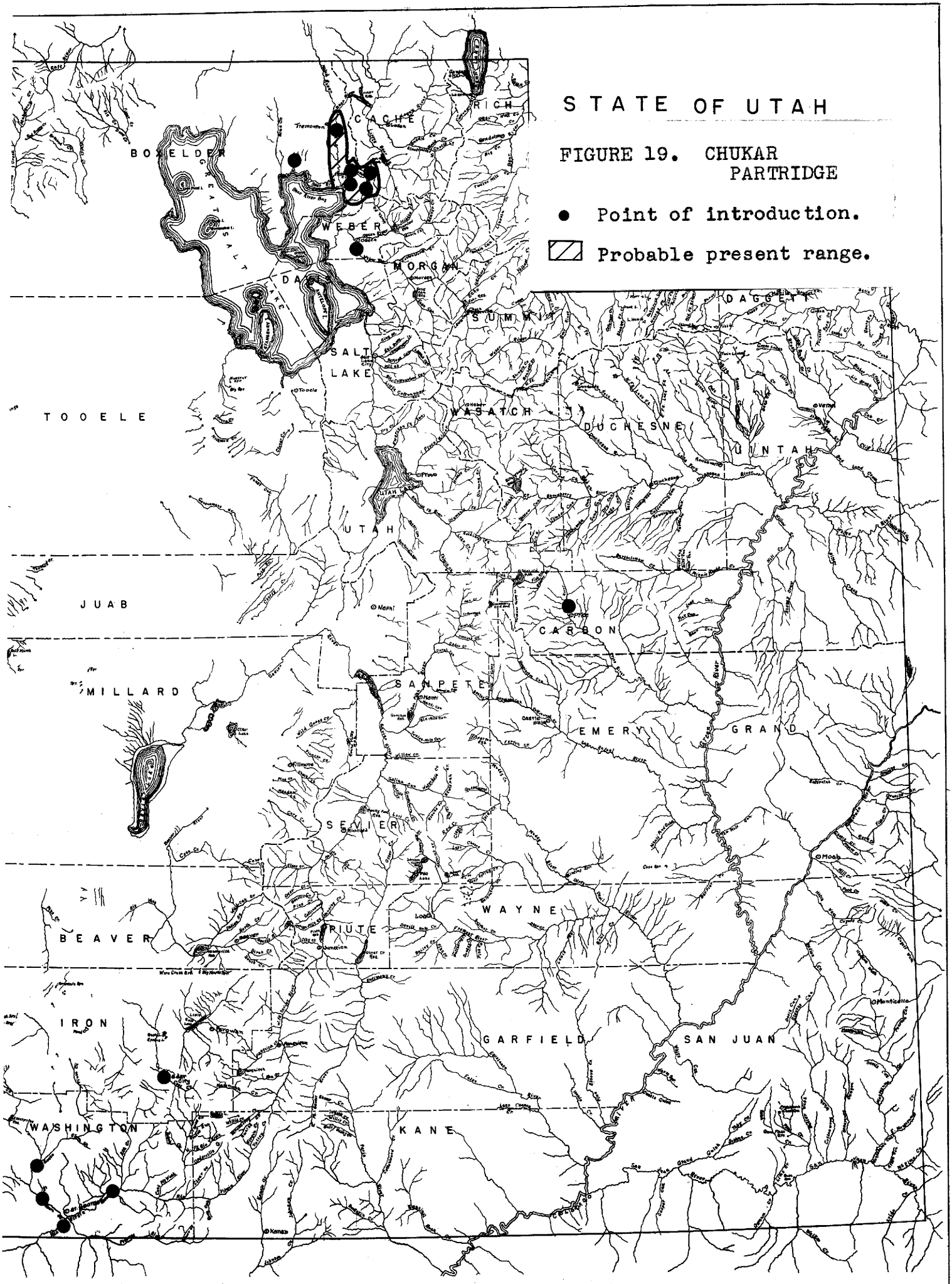
* Utah Cooperative Wildlife Research Unit files.

** Information obtained from D. M. Gaufin, Utah State Fish and Game Dept., Salt Lake City, Utah.

***Information obtained from Earl Anderson, President, Box Elder Wildlife Federation, Brigham City, Utah.


STATE OF UTAH
FIGURE 19. CHUKAR PARTRIDGE
Point of introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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4. Cook, Newell B. Report of the state fish and game commissioner of the state of Utah from July 1, 1938 to June 30, 1940. Salt Lake City, Utah: State of Utah, 1940, p. 25.

BOBWHITE QUAIL

Scientific Name - Colinus virginanus.[1]

Common Names - Bobwhite; Bobwhite Quail; Virginia Quail; Eastern Partridge.[1]

General - The bobwhite quail is a small bird, slightly larger than a meadow-lark. The upper parts are reddish-brown and black, the sides reddish-brown narrowly barred with black, and the under parts buff to brown. The sexes are colored alike except that the male has a white line through the eye and a black-bordered white throat.[1] The bobwhite can be distinguished from the California quail by its rusty color and by the absence of a head plume. In flight it can be distinguished from the meadow-lark by the absence of white outer tail coverts.[2]

The bobwhite quail is native to eastern and midwestern United States, and, since its introduction, has become abundant in certain parts of the West.[3] Its preferred habitat is chiefly agricultural land or adjacent areas.[4] Wild and domestic grains, seeds, and berries are important items in the diet of this quail.[5] Bobwhite quail are characteristically seen in small flocks, and when flushed they break from cover with a loud whir of wings. A shrill whistle of bobwhite, or poor bobwhite, is characteristic of this species.[4]

The bobwhite is the most widely hunted native American upland game bird.[1] Its importance to hunters in the eastern, midwestern, and southern United States is tremendous. It holds well for a pointer and is much hunted because of the

sporty shooting it affords. The flesh of the bobwhite is second to none.

First Introduction - So far as is known, the earliest introduction of the bobwhite quail into Utah occurred about 1870 in the vicinity of Ogden. The circumstances pertaining to this introduction are unknown. An early ornithologist reported that these quail were present near Ogden in 1871, and that they were doing nicely.[6]

Subsequent Introductions - Henshaw reports that a number of pairs of bobwhites were introduced near Provo from the East in 1872.[7] According to Mr. G. R. Walker of Salt Lake City, some of these birds were brought into the state by Mr. W. W. Chisholm and Mr. John Cunnington and liberated on the farm of Mr. Samuel Sharp Walker in the late 1870's. They increased at this site for a number of years. Too much hunting and severe winter conditions were thought to have greatly reduced their numbers by 1902.[8] Mr. David H. Madsen, of Salt Lake City, recalls that bobwhites were numerous along the Provo River in the vicinity of Provo from about 1884 to 1890. Whether these were from the previously mentioned Provo plant of 1872 or the result of some unknown subsequent plant is not known.

Between 1889 and 1897 bobwhites were hunted between Salt Lake City and Ogden by sportsmen.[7] It is possible that there may have been some introductions in the vicinity of Ogden and Salt Lake City prior to 1897 which have not been noted here. An introduction of bobwhites from the East was made on Antelope Island in 1900. They fared well for a while

but disappeared completely in 1903.* A report of 1904 indicated that bobwhite quail were very scarce in the state at that time.[9]

The 1915 and 1916 State Biennial Report indicated that a small plant of bobwhites had been made in Utah in 1916.[10] The place of liberation and other circumstances pertaining to this introduction were not included in this report, and further investigation has failed to locate this information.

About 1935, two small plants, one near Vernal and one near Jensen, were made in Uintah County by the State Fish and Game Department.** A 1939 report indicated that both of these plants were holding their own.[11] In 1938, 23 pairs of bobwhites, obtained from Wisconsin, were released on the Frank Avery farm on the Richfield-Greenwood highway.*** The details of this introduction are unknown. However, Elwin Cloward, State Game Warden, reports that these bobwhites were not seen after their release.

In 1947 the Box Elder Wildlife Federation liberated 200 pairs of bobwhite quail; 100 pairs just north of Deweyville, and 100 pairs east of Brigham City. These were obtained from the Midwest, and all were in good condition when planted. At this writing, birds from both of these plants are reported to be doing well. According to members of the Box Elder County

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* Information obtained from W. H. Olwell, Manager, Island Improvement Co., Salt Lake City, Utah.

** Information obtained from Newell B. Cook, Commissioner, Utah State Fish and Game Dept. (1931-1940), Mantua, Utah.

***Utah Cooperative Wildlife Research Unit files.

Wildlife Federation, some of them have moved considerable distances from the points of their release.* Eight bobwhites were observed by the writer on the Bear River near Deweyville on November 11, 1948.

Fifty pairs were planted between Tooele and Grantsville in Tooele County in 1946 by Roy Garrard, State Game Warden. Again in 1948 an additional 50 pairs were released in the same area. The birds making up the plants in both of these cases were in apparently good condition at the time of release. Periodically between 1946 and the present time various individuals in that locality have reported seeing some of these quail. These introductions were instituted by the Tooele County Wildlife Federation.**

Present Status - The status of this species in Utah is rather uncertain. From the accompanying map, it will be seen that the present range of the bobwhite is confined to three small areas (Figure 20).

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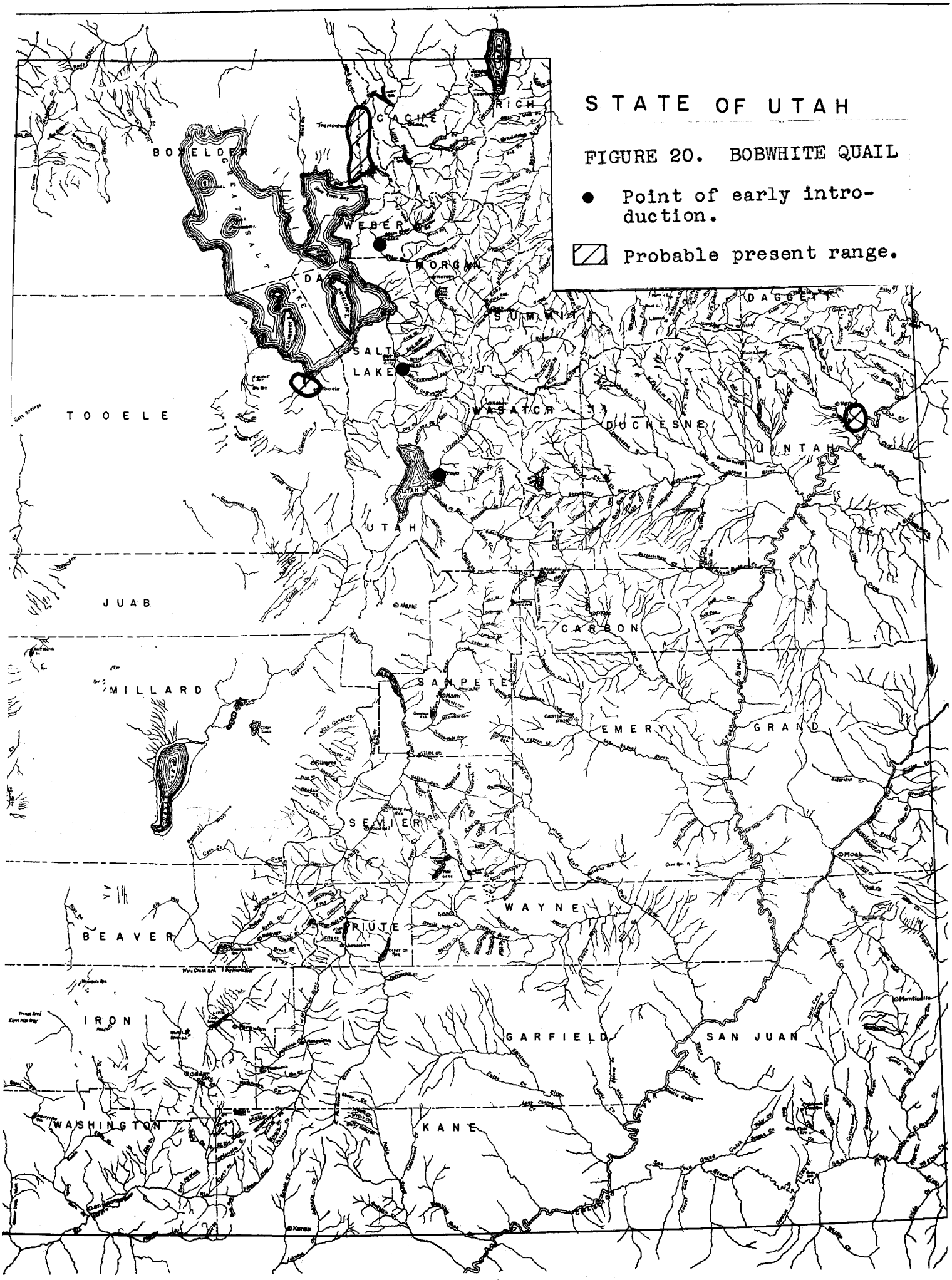
* Information obtained from Earl Anderson, President, Box Elder Wildlife Federation, Brigham City, Utah.

**Information obtained from Roy Garrard, State Fish and Game Warden, Tooele, Utah.


STATE OF UTAH
FIGURE 20. BOBWHITE QUAIL
● Point of early introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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CALIFORNIA QUAIL

Scientific Name - Lophortyx californica.[1]

Common Names - California Quail; California Partridge; Top-Knot Quail; Valley Quail.[2]

General - The California quail is a small, plump, grayish bird with a short plume that curves forward from its crown. There are olive and dark brown patches on the head, and on the throat is a white bordered black patch. The breast is a bluish gray, and the belly is scaled except for a central chestnut patch. The flanks are dark olive to brown, and the back is olive.[3] The males have a pronounced black and white face pattern, which is duller and much less pronounced in the females.[1]

The California quail is native to the west coast of the United States from middle California north to the Columbia River. It has been widely introduced into almost all of the other western states.[2]

The California quail is commonly found in valleys, up into the foothills, and even in cities within its range. Wherever it is unmolested, it becomes extremely tame. Berries, seeds, insects, grains, and tender garden crops are known to be especially palatable to this quail.[2]

Wherever found in Utah, this little bird is a favorite with most everyone. It is not so good a game bird as the bobwhite, as it frequently runs to escape danger and does not hold well for a dog. Its familiar harsh call is characteristic.[3]

First Introduction - Several days prior to November 10,

1869, General Gibbon brought to Utah Territory from California 14 pairs of California quail and set them at liberty in the vicinity of Camp Douglas.* It is believed that this was the first introduction of this species into Utah. None of the details of this planting are available. It was reported to J. A. Allen that this species produced young in 1871 in the vicinity of Salt Lake City.[4]

Subsequent Introductions - About 1870 Mr. Samuel Sharp Walker brought a number of these quail to Utah from California and liberated them on his farm at the mouth of Big Cottonwood Canyon. Due to lack of protection and to a severe winter these birds did not survive. Three years later, through the Territorial Fish and Game Warden, a second lot was brought to Utah, and these also were liberated on the Walker farm.[5] The March 27, 1873, Deseret Evening News mentions this introduction and goes on to state that these quail were doing well at that time. An 1872 report by an early ornithologist indicates that California quail were present in the vicinity of Ogden at that time, and that they were reproducing themselves. It is probable that a plant was made in that area about 1870 or 1871.[4]

California quail were not mentioned by Nelson, Merriam, and Henshaw, who were in Utah in 1872.[6] Probably they were extremely scarce at this time. In 1878 a hunter inadvertently shot a brace of these birds, mistaking them for grouse. These were sent with a note of apology to Mr. Samuel S.

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*Deseret Evening News, November 10, 1869.

Walker.* Mr. G. R. Walker of Salt Lake City, a nephew of Samuel S. Walker, reports that California quail have been abundant near the mouth of Big Cottonwood Canyon from 1886 until the present time.

In 1887 Mr. Theodore Burmeister planted several pair of these near Grantsville in Tooele County.** In 1888 California quail were reported to be numerous throughout Salt Lake Valley. By 1893 they were reported to have decreased in numbers in this area.[6] An introduction of a number of these quail was made onto Antelope Island in 1893.*** They survived and did well for a number of years, but shooting reduced their numbers, and they disappeared about 1905.****

It is probable that after the initial success of the California quail introductions in the vicinity of Salt Lake City many of these birds were transplanted to other areas of the state prior to 1900. In 1901, the State Fish and Game Commissioner declared an indefinitely closed season for the entire state.[7] By 1904 California quail had increased to a point where a ten day season was permitted in Salt Lake, Davis, and Weber Counties. This hunt was reported to be a very successful one.[8] In 1905 they were reported to be increasing in Salt Lake, Davis, Uintah, and Weber Counties. In

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* The Deseret News Weekly, December 18, 1878.

** Deseret Evening News, May 3, 1887.

*** Deseret Evening News, March 1, 1893.

****Information obtained from W. H. Olwell, Manager, Island Improvement Co., Salt Lake City, Utah.

this same year a few were transplanted from Salt Lake County to Sanpete and Emery Counties.[9]

The transplants in Emery, Garfield, Piute, Sevier, and Wayne Counties were doing well by 1910.[10] In 1911 they were reported to be increasing beyond expectations in Weber, Davis, Salt Lake, Utah, Uintah, and Iron Counties. A 1912 report indicated that California quail were numerous in Uintah, Carbon, Sanpete, Emery, Garfield, Piute, Sevier, and Wayne Counties.[11]

By 1915 California quail had established themselves well in many counties throughout the state. In counties where populations of California quail warranted, an open season was held each year from 1938 until the present time. In 1946, 27 of these quail were planted on the Bear River near Honeyville in Box Elder County. At this writing they have apparently established themselves and are increasing.*

Present Status - At the present time California quail are widely distributed throughout the state (Figure 21).

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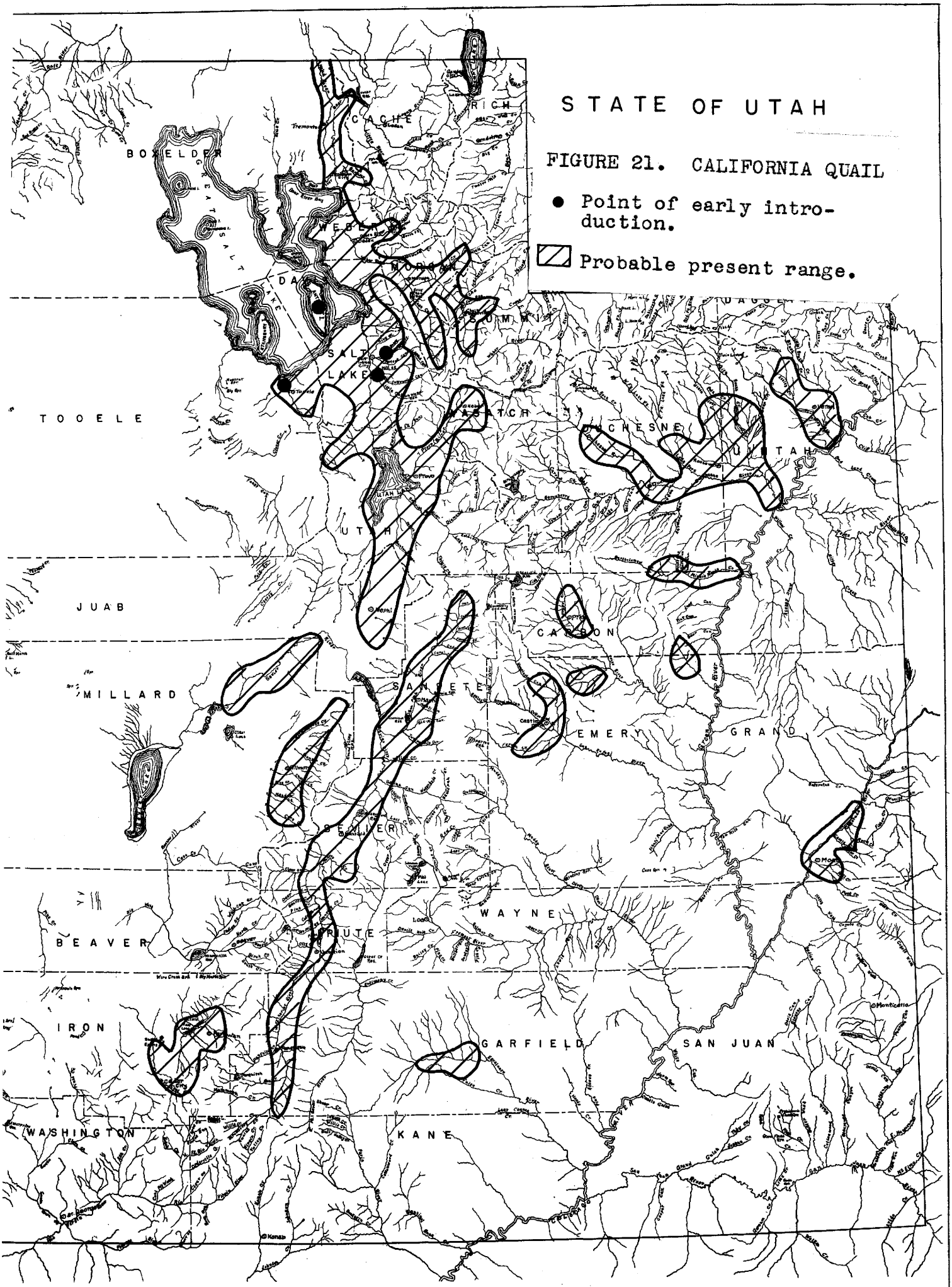
*Information obtained from Earl Anderson, President, Box Elder Wildlife Federation, Brigham City, Utah.


STATE OF UTAH
FIGURE 21. CALIFORNIA QUAIL
● Point of early introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
SUMMIT
DAGGETT
SALT LAKE
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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RING-NECKED PHEASANT

Scientific Name - Phasianus colchicus torquatus.[1]

Common Names - Ring-Necked Pheasant; Chinese Ringneck; Ringneck; Oregon Pheasant.[2]

General - The ring-necked pheasant is closely related to the pea fowl and the domestic cock. The male is a large bird from 30 to 36 inches in length and weighing from 2 to 3 pounds. The red patches about the eyes and the bluish-purple head are very striking. The white ring around the neck may be complete or incomplete. The back is orange-brown to reddish intermingled with black and other colors. The breast is coppery-chestnut with purplish edgings and crossed with blackish bars. The greenish rump patch and the usually long black-barred tail are also distinctive.

The female is a much smaller bird, from 20 to 26 inches in length and from one and one-half to two and one-half pounds in weight. The general color is brown with black variegations. The white neck collar and the long tail are absent.[3]

The ring-necked pheasant is native to eastern China and northeastern Indo China. One of the early successful introductions of this bird into the United States occurred in the Willamette Valley of Oregon in 1881.[4] The habitat of the ring-necked pheasant in the United States, as well as in its native land, is confined to agricultural lands or adjacent areas.

The food of the ring-neck consists primarily of vegetable matter. Waste grain, greens, and weed seeds gleaned

from cultivated fields are important items. It is chiefly a ground feeder by nature, but under winter conditions it may resort to feeding on buds, fruits, or berries left hanging on bare branches or vines.[5] Pheasants are polygamous, one rooster serving from 1 to 10 hens. On the whole they are quite tolerant intraspecifically; however, some complaints have been voiced that the pheasant is very intolerant interspecifically, but it is not known if any scientific investigation of this has been made.

The introduction of the pheasant into the United States has been a success as far as hunters are concerned. However, a good deal of crop damage has been charged to this bird. Its importance as an upland game bird in Utah as well as in the entire United States is very great.

Recently, the State Fish and Game Department has introduced a dark variety of pheasants which may be of the Mongolian strain. These have been crossed with ring-necked brood stock at state game farms.

First Introduction - The records as to the particulars of the first introduction of the ring-necked pheasant into Utah are somewhat vague. So far as this writer has been able to ascertain this bird was brought into the state about 1890 by the Hon. M. H. Walker and liberated on the Walker Farm at the mouth of Big Cottonwood Canyon.[6] The source of these pheasants and their condition at planting are unknown. Evidently this plant must have been successful as a law passed by the Territorial Legislature in 1894 gave protection to the

Chinese pheasant.*

Subsequent Introductions - Several years prior to 1897 M. H. Walker released some of his pheasants on lands surrounding the Walker Farm at the mouth of Big Cottonwood Canyon.[6] In 1898 the Walker Brothers made another introduction of ring-necks to their farm. At that time birds from the first introduction were reported to be increasing there.[7] From this time until the present pheasants have always been numerous in this general area.**

A number of English and Chinese pheasants were liberated on Antelope Island on March 1, 1893 by John E. Dooly, Sr.*** The source of these pheasants is not known. It is believed that this planting was successful, as pheasants were hunted on the island from about 1895 to 1905. By 1905 shooting had reduced their numbers and shortly after this they disappeared.****

It is possible that there may have been other introductions of the ring-necked pheasant into Utah shortly after 1890 which are not mentioned here. An egg set taken by a collector prior to 1899 indicated that the pheasant was reproducing itself in the wild at that time.

In 1900 the first introduction of pheasants into the

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* Deseret Evening News, March 16, 1894.

** Information obtained from G. R. Walker, Salt Lake City, Utah.

*** Deseret Evening News, March 1, 1893.

**** Information obtained from W. H. Olwell, Manager, Island Improvement Co., Salt Lake City, Utah.

Uintah Basin was made near Vernal.[8] The details of this introduction are unknown. In 1910, ringnecks, either from this plant or a subsequent one, were reported to be increasing and spreading in this area.[9]

A 1904 report from State Game Warden, Horace Eldredge, indicated that ring-necked pheasants were increasing and spreading all over Salt Lake County.[10] Reports of 1905 and 1906 stated that they were still increasing in this region. One pheasant was reported from Carbon County in 1906.[11]

In 1914 pheasants in significant numbers were found only in four counties in Utah. These counties were Salt Lake, Weber, Utah, and Uintah. In this year pheasant damage to truck gardens was reported in Salt Lake County. The State Fish and Game Department planned to trap some of these pheasants and transplant them to other counties.[12]

In 1916 the first open season was proclaimed by the State Fish and Game Commissioner. A two day season was permitted in the above-mentioned four counties, and the bag was set at two male birds per day.[13] Estimates as to the number of birds taken are not available. However, the season was reported to be a successful one.* The first pheasant damage claims were filed against the State Fish and Game Department in the spring of 1917 by a number of Salt Lake County farmers. A seven day open season was authorized during the fall of 1917, and again in 1918, in Salt Lake, Weber, Utah, and

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*Information obtained from David H. Madsen, Utah State Fish and Game Dept., (1910-1926), Salt Lake City, Utah.

Uintah Counties. The bag limit was two male birds per day and four birds per season. It was estimated that 300 birds were killed in Salt Lake County alone. Because of crop damage claims the State Fish and Game Department planned to trap some pheasants out of Salt Lake County during the winter of 1918.[14]

Two-hundred stock pheasants were obtained from various parts of the United States by the State Fish and Game Department in 1921, and from these, 1,000 pheasants had been reared by the fall of 1922. The establishment of the new game farm at Springville made this operation possible.[15] During 1923 and 1924, 5,064 pheasants, raised at the Springville Game Farm, were distributed throughout the counties of the state. In addition, 1,540 eggs were distributed to 11 counties for hatching. A ten day open season was held in Salt Lake County in the fall of 1924. An estimated 3,000 pheasants were taken, and it was reported that the supply was not appreciably diminished.[16] In 1925, 4,868 pheasants were distributed to all counties of the state.[17] From 1926 to 1940 the State Fish and Game Department annually reared in excess of 5,000 birds for liberation.

In 1927 and 1928 an open season was held in 10 counties and an estimated 100,000 birds were taken.[18] The number of counties open to pheasant hunting was increased to 15 in 1930. At this time the Springville Game Farm was able to produce these birds for liberation at the rate of $ .75 per pheasant.[19]

In 1932 the 4-H Clubs of the state undertook a pheasant raising project. The eggs were furnished by the State Fish

and Game Department, and club members hatched them out and released the young pheasants at eight weeks of age.[20] In 1935 a compensation policy for 4-H Club members who were raising pheasants was authorized. Under this policy the State Fish and Game Department continued to furnish the eggs and paid the club members $ .80 per bird on liberation.[21] From 1932 to 1944, 4-H Club members throughout the state raised 16,100 pheasants for liberation. In 1944 this project was discontinued because of the expense involved.*

All counties of the state reported pheasants to be increasing in 1935. During this year an investigation of crop damages by pheasants was conducted by Dr. D. I. Rasmussen of the Utah State Agricultural College. As a result of this, the State Fish and Game Commissioner advocated a sound compensation policy for pheasant damage to crops. This was adopted by the legislature.[21]

In 1940, 20 counties were opened to pheasant hunting with bag limits and length of season varying. During the 1941 season, an estimated 150,000 birds were bagged by hunters.[22] By this time pheasants were pretty well established throughout the state wherever the habitat was suitable. The number of pheasants released annually by the State Fish and Game Department had increased to approximately 8,000 in 1943.[23]

In the past four years increased numbers of hunters have decreased the average number of birds taken per hunter,

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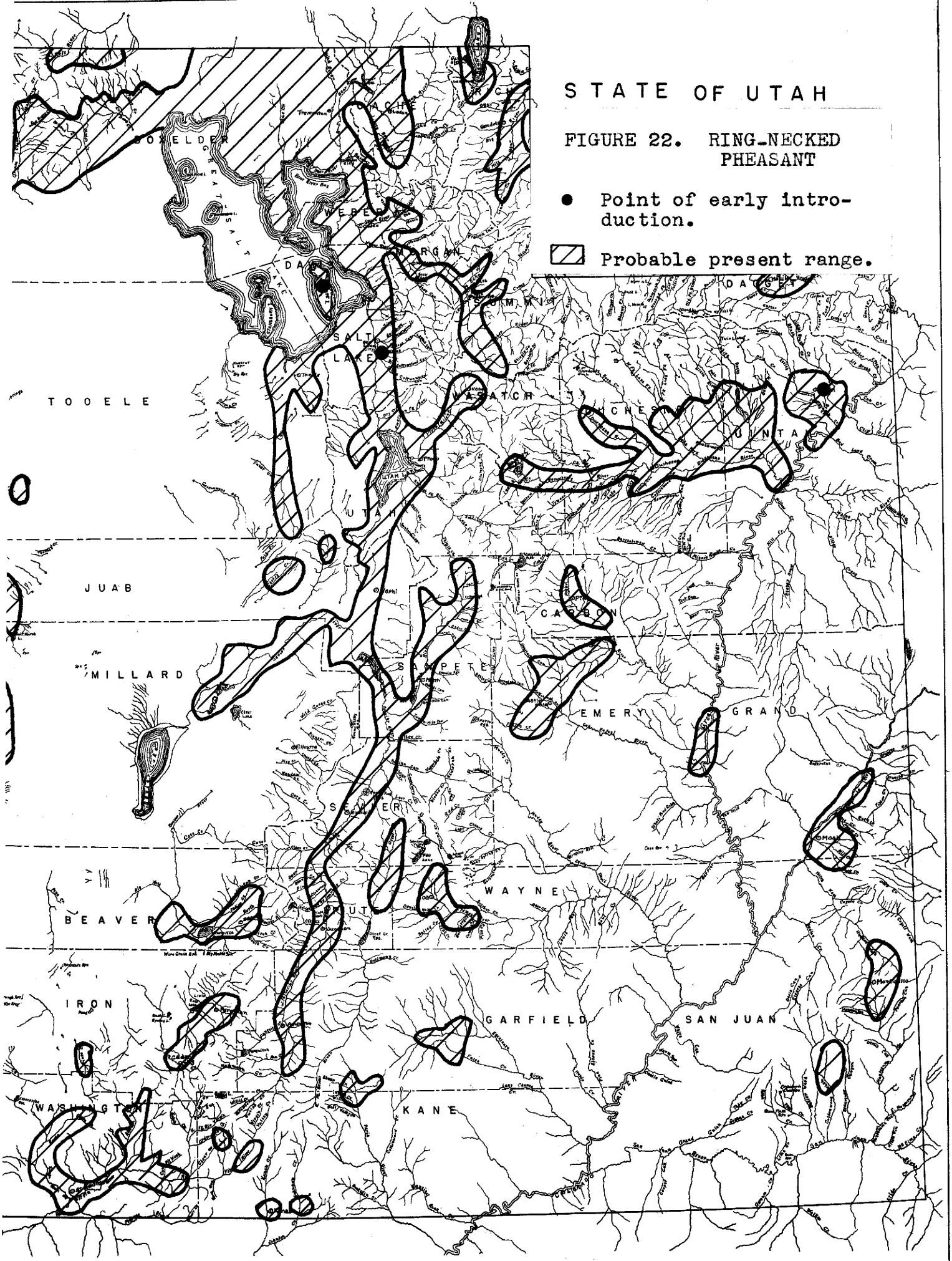
*Utah Cooperative Wildlife Research Unit files.

but it is believed that the total number of birds taken has not decreased. Only three percent of Utah is under cultivation, and since the habitat suitable for pheasants conforms closely to the agricultural areas of the state, it is readily seen that the number of pheasants which the state can produce and support is limited.

Present Status - The present status of this species in Utah can be classed as good. Pheasants have definitely established themselves in most agricultural areas of the state, and are reproducing well in the wild (Figure 22). What problems the increasing number of hunters may create in the future are not known at this time.


STATE OF UTAH
FIGURE 22. RING-NECKED PHEASANT
• Point of early introduction.
Probable present range.
BOX ELDER
TOOELE
JUAB
MILLARD
BEAVER
IRON
WASHINGTON
KANE
GARFIELD
SAN JUAN
WAYNE
EMERY
GRAND
CARBON
DAGGETT
UINTAH
SALT LAKE
UTAH
WEBER
DAVIS
SUMMIT
WASATCH
SANPETE
SEVIER
PIUTE

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WILD TURKEY

Scientific Name - Melegris gallopavo.[1]

Common Names - Wild Turkey; American Turkey, Northern Turkey; Great American Hen: Gobbler.[1]

General - The eastern turkey, Meleagris gallopavo silvestris, and merriam's turkey, Meleagris gallopavo merriami, are similar in appearance except for chestnut tail feather tips in the eastern turkey and white tail feather tips in merriam's turkey. The wild turkey is like our domesticated turkey in appearance. Quite frequently wild turkeys interbreed with domestic turkeys.

The range of the eastern turkey runs from Pennsylvania west to Missouri, and thence southward to the Gulf of Mexico.[1] Merriam's turkey is confined to the mountains of southern Colorado, New Mexico, Arizona, and western Texas.[2] The chief foods of the wild turkey are fruits, grains, nuts, seeds, and leaf buds. Its preferred habitats are inaccessible mountains, swampy bottom lands, or wooded stream borders.[3]

The wild turkey is probably the most cunning, wary, and unapproachable bird to be found. This bird has been hunted so much that in many areas where it was formerly very abundant, it is now considered quite rare.

First Introduction - In 1925 the Island Improvement Company released 15 wild turkey toms and 50 domestic hens on Antelope Island. The wild toms were obtained in the East, and were of the eastern strain, and the hens were of domestic Utah stock. Every two years after this release 8 to 10 wild toms from the east were brought in and released on the island.

Evidently the habitat was to their liking, for they did very well and started reproducing in 1926. They were quite timid and were very strong flyers.

In 1935 there were estimated to be 150 turkeys on the island. At this time the Island Improvement Company decided to control their numbers. At the present time there are only 20 to 30 left on the island, and they are reported to be extremely wild.*

Subsequent Introductions - Some Milford railroad men released two pair of turkeys 12 miles east of Milford in 1936. These were released into sage-juniper foothills. They were eastern turkeys and all were in good condition at the time of their release. The desire to establish this magnificent game bird in Utah prompted this introduction. In 1937 the Milford Wildlife Federation purchased five wild turkeys from a game bird farm in the East, and these were kept at the Springville Game Farm. One-half of the increase was to be delivered to the Milford Wildlife Federation. On April 10, 1938 ten young turkeys, all in good condition, were delivered to the federation and were released at a point ten miles east of Milford in the same area as the 1936 plant. Again in 1939 six were received, all in good condition, and planted in this same area. Seventeen additional birds were received and planted in 1940 and 1941 in the same area. This made a total of 37 of these birds introduced into one area over a period of five

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*Information obtained from W. H. Olwell, Manager, Island Improvement Co., Salt Lake City, Utah.

years.* Turkeys were seen in this area until 1942, after which time they were not observed again.**

In November of 1940, 27 wild turkeys were liberated on Stratton Ranch southeast of Central in sage-juniper foothills. Water conditions in this region were excellent, and these birds were in good condition at release. Turkeys were seen in this region until the fall of 1943. They have not been reported since.***

In 1941, 12 turkeys from Springville were turned over to the Cedar Wildlife Federation for planting. Two pairs were released in Crystal Gulch in southeastern Iron County, and four pairs were planted in Cedar Canyon on the coal beds. These turkeys did well the first year and then disappeared completely.****

Some wild turkey poults were taken from the Springville Game Farm to St. George in 1942, and Warden Stratton raised them. In September of that same year four pairs of these were planted on North Creek just north of Virgin City. They remained in this vicinity without increasing until 1944, when they joined a band of domestic turkeys. Mrs. Julia Leithead released the remaining five in southeast Washington County in

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* Utah Cooperative Wildlife Research Unit Files.

** Information obtained from Othello Riley, State Fish and Game Warden, Beaver, Utah.

*** Information obtained from Oliver Stratton, State Fish and Game Warden, St. George, Utah.

**** Information obtained from Claude MacFarlane, State Fish and Game Warden, Cedar City, Utah.

May of 1943. There were two toms and three hens, and all were in good condition. These were not reported after the winter of 1943.*

On July 4, 1942, two pairs were released at the head of Zion Canyon. These birds were from the Springville Game Farm, and they were planted in sage juniper hills. By late summer all four of these turkeys were known to have moved ten miles from the point of their release. Since this time no observations of these have been reported.[4]

Undoubtedly the most successful recent introduction of this species occurred on the ranch of George W. Snyder in the south fork of the Provo River. In June of 1943, three males and three females were released there. This stock was obtained from a game farm in Illinois and was of the eastern strain. Shortly after liberation one male and one female were found dead. In 1944 each of the remaining hens raised a brood, and in 1945 quite a number of broods were successfully raised. During 1946 a number of adults and young were observed in this area. It was reported to Mr. Snyder that in November of 1946 approximately 50 of these turkeys were killed by poachers from Park City. After this no sign of any remaining birds could be found. However, during the fall of 1947, a deer hunter reported seeing several wild turkeys in Daniels Canyon, a distance of 25 miles from the Snyder Ranch. In March of 1948, two pair from the same Illinois game farm

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*Information obtained from Oliver Stratton, State Fish and Game Warden, St. George, Utah.

were liberated by Mr. Snyder, and at this writing these are reported to be doing well.*

Present Status - At this time the wild turkey is found only in two widely separated locations in Utah (Figure 23).

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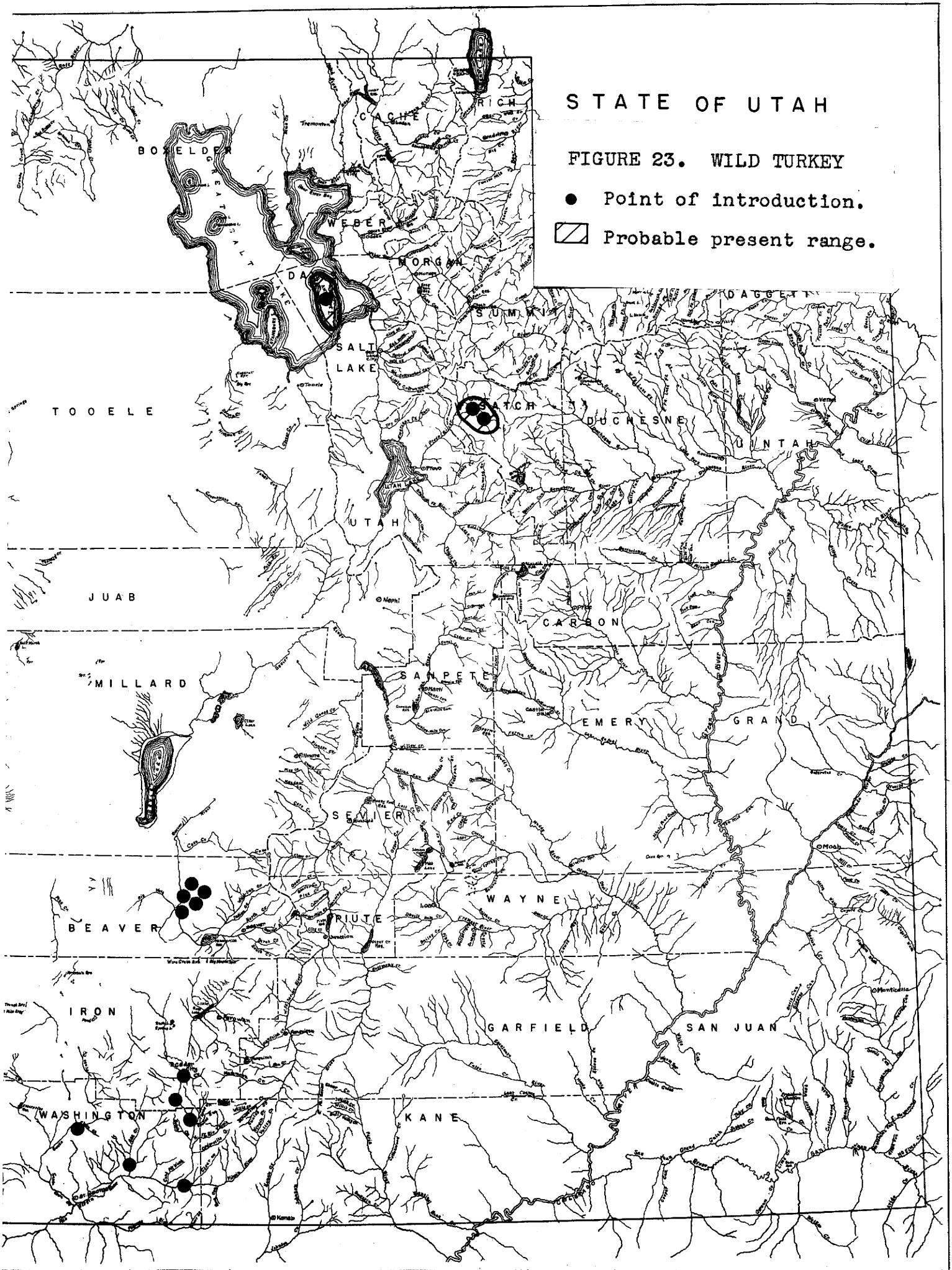
*Information obtained from George W. Snyder, Salt Lake City, Utah.


STATE OF UTAH
FIGURE 23. WILD TURKEY
● Point of introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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GAME AND FUR-BEARING MAMMALS

Introduction

The histories of the introduction of exotic mammals and the stories of the reintroduction of native mammals into Utah are, indeed, interesting ones. In pre-pioneer days elk, deer, buffalo, antelope, mountain sheep, and many other smaller game and fur-bearing mammals were numerous in Utah. Many of these were important to the early explorers and to the pioneers who entered the territory. They depended upon these game and fur-bearing mammals for food, and in many instances for their livelihoods.

Prior to 1896, when Utah attained statehood, there were numerous recommendations made by the territorial fish and game wardens suggesting closed seasons on certain game animals. Shortly after the appointment of a State Fish and Game Warden in 1896, elk and antelope were put on the protected list.

In the majority of cases the reintroduction of formerly abundant native species has been attempted. It is realized that introductions of elk, antelope, and buffalo listed as introductions in this paper were merely reintroductions. In many instances these introductions along with protective measures have been very successful. Prior to 1912, introductions either occurred naturally or were made by well-to-do sportsmen.

For most of the mammals the scientific name, the common names, and the description have been taken from Anthony's "Field Book of North American Mammals".

DARK MUSKRAT

Scientific Name - Ondatra zibethica spatulata.[1]

Common Names - Muskrat; Musquash.[1]

General - The dark muskrat is of medium size, averages 21.2 inches in length, and is black to dark brown on the dorsal surface. The sides and ventral surface are brown to slate colored. This animal is native to Alberta and British Columbia north to Alaska. It inhabits marshes and waterways and feeds chiefly on aquatic plant material. Because of its dark color its fur is rated much higher than that of indigenous muskrats in Utah.[1]

First Introduction - The dark muskrat was introduced in Utah about 1925, into a marshy area known as Sagebrush Lake just southwest of Bear River City, in Box Elder County. Three pair of dark muskrats were shipped into the state from Alberta, Canada at a cost of $12 per pair. The party responsible for the introduction is unknown.

The desire to improve the quality of the pelts from this marsh undoubtedly prompted this introduction. Sagebrush Lake is a typical Utah muskrat marsh, and rocky mountain muskrats (Ondatra zibethica osoyoosensis) thrived there prior to this time. In the first year after their introduction 27 dark pelts were taken. From then until 1947 a uniform decrease in the number of dark pelts taken each year was noted. During the 1947 trapping season only five dark pelts were taken. Undoubtedly these dark muskrats interbred with the native rocky mountain muskrats.

Present Status - The probable present range is confined

to the area of the original introduction (Figure 24). Trappers in surrounding areas have not reported taking any of these dark muskrats.* In view of the small number of dark muskrats introduced, it is believed that this introduction was highly successful. At this time, however, the direct descendants of the original muskrats are probably decreasing.

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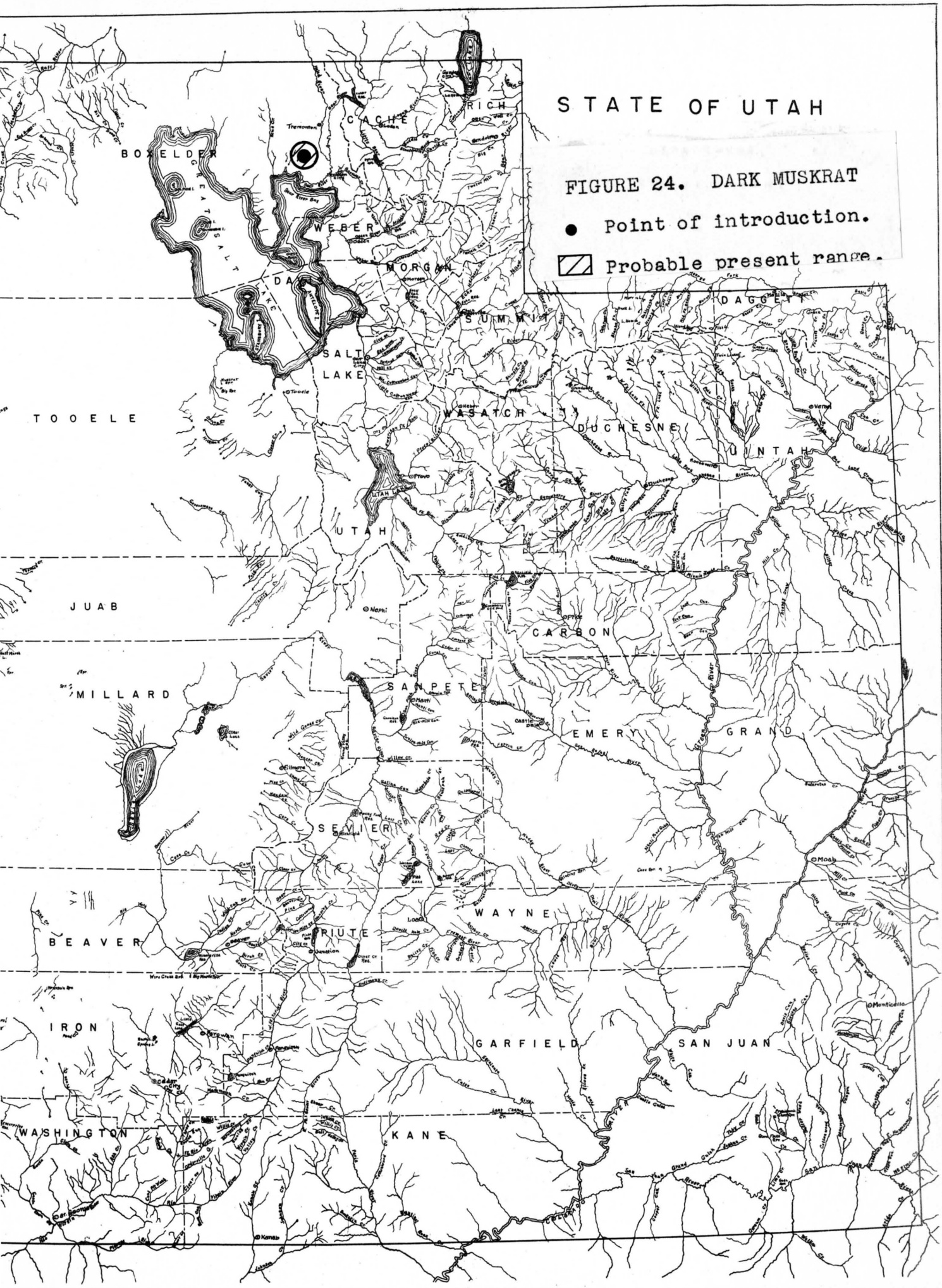
*Information obtained from Arnold Christensen, State Fish and Game Warden, Bear River City, Utah.


STATE OF UTAH
FIGURE 24. DARK MUSKRAT
Point of introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE
Great Salt Lake
Utah Lake
Tremonton
Provo
Nephi
Price
Moab
Monticello
Kanab

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NUTRIA

Scientific Name - Myopotamus coypu.[1]

Common Names - Nutria; South American Swamp Beaver.[1]

General - The nutria is intermediate in size between the beaver and the muskrat, weighing from 6 to 30 pounds. In appearance also it resembles both the beaver and the muskrat. The hind feet are webbed, and it is an excellent swimmer, although a poor diver. Its incisors are broad and sharp closely resembling those of the beaver. The tail is round and muskrat-like. Its pelt in color and quality is between that of a beaver and a muskrat.

Unlike most fur bearing animals the fur on the underside of the animal is the most valuable. In processing the pelt is cut down the center of the back rather than down the belly. The nipples are located high up on the sides, and the young suckle while the female lies in the water. Several litters a year are not uncommon, and the number of young varies from 3 to 15.[2]

This mammal is native only to South America where it inhabits quiet fresh water streams and ponds. It is strictly a vegetarian, eating foliage, seeds, and roots of water plants. It bores into banks and frequently builds platform-like nests similar to those of the muskrat. In habit it is partially nocturnal, being most active during the twilight hours.[1]

The nutria resents intrusion and is capable of defending itself. According to George Cox, caretaker of the New State Gun Club, on two separate occasions a large nutria has

soundly whipped a good-sized hunting dog. One dog was so demoralized as to render him completely useless for hunting.

The pelt of the nutria was originally intended as a substitute for beaver, but in recent years has become important enough to sell on its own merits. It is used chiefly for trimming cloth coats, for fur coats, and in the manufacture of hats.[1] Thousands of nutria pelts are imported yearly from South America for sale on the American markets. On the New York market, prices in 1928 varied from $2.70 to $6.70 per pelt, and present day prices are comparable.[2] In order to obtain top price, it is necessary to market a number of pelts at a time, and for this reason the few pelts sold in Utah in the last eight years have brought rather low prices.

First Introduction - The nutria was first introduced into Utah in 1939 by Clarence Holmstead, a fur farmer residing in Lehi near the origin of the Jordan River (Table 4). The land surrounding Mr. Holmsteads farm is irrigated farmland crisscrossed with irrigation ditches and canals. One-hundred nutria, half males and half females, were purchased at a fur farm in Roswell, New Mexico by Mr. Holmstead. They withstood the trip well, and all were in good condition when put into their pens at Lehi. Because of the digging prowess of these animals, Mr. Holmstead had installed a fence which extended three feet underground. The possibility of high financial returns prompted this introduction.

Periodically between 1939 and 1941 a few escaped from Mr. Holmsteads fur farm, and in August of 1941, the remainder, about 75 individuals, escaped by digging under the fence.

Since 1941 muskrat trappers in the vicinity of Lehi have taken quite a number of nutria in their traps. From the reports of these trappers, it is known that these animals have moved up to 15 miles from their escape point.*

Subsequent Introductions - In 1940 Dean Willis of Lehi, a neighbor of Clarence Holmstead, purchased several pair of nutria from Mr. Holmstead. Most of these had escaped from him by 1942, and this accidental introduction, along with the one mentioned above, has helped to establish this species in that area.*

Bruce A. Hartman, owner of the Salt Lake Fur Farm, at West Jordan, also purchased a number of pairs of nutria from Clarence Holmstead in 1940. He first put these into mink pens but soon moved them to larger pens of their own. Shortly after arriving at West Jordan they began escaping, and that fall during the trapping season a number were taken near there by muskrat trappers.**

In 1941 Jim Smyth, Salt Lake City hatter, imported several pair from a fur farm in Colorado and also purchased a few pair from the Salt Lake Fur Farm. He kept these at 48th South and 4th West in Murray along the Jordan River. From 1941 until the fall of 1942 approximately 15 nutria escaped from this locality. Mr. Smyth was chiefly interested

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* Information obtained from Clarence Holmstead, fur farmer, Lehi, Utah.

**Information obtained from Mrs. Bruce A. Hartman, Salt Lake Fur Farm, West Jordan, Utah.

in the nutria fur for the manufacture of beaver hats.*

A. M. Creamer of Logan bought the remainder of Bruce Hartmans stock in 1942 and kept them on his farm one mile west of Logan on the Valley-View Highway. Four of these escaped from Mr. Creamer, however, none of these has been subsequently reported.**

Jim Smyth intentionally liberated the remainder of his stock, nine pair, at the New State Gun Club, just west of Woods Cross, in the early spring of 1943. These animals were in poor condition at the time of liberation, and five were found dead on the marshes during the ensuing winter.[2] George Cox, caretaker of the gun club, reported that the remaining nutria produced 17 young the first year. During the 1944 trapping season 17 nutria were caught in muskrat traps on the club property, and all 17 were released. Eleven were caught, pelted, and sold to a fur dealer during the 1945 season. In 1946 nine were caught and sold. However, it was estimated by the trappers that there were considerably more nutria in 1946 than in 1945. All trappers reported that they had intentionally avoided catching the nutria.***

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* Information obtained from Jim Smyth, hatter, Salt Lake City, Utah.

** Information obtained from A. M. Creamer, former fur farmer, Salt Lake City, Utah.

***Information obtained from George Cox, caretaker, New State Gun Club, Woods Cross, Utah.

Table 4 NUTRIA INTRODUCTIONS IN UTAH

Period	Locality	County	Present Today
'39-'42	Lehi	Utah	Yes
'40-'42	West Jordan	Salt Lake	Yes
'41-'43	Murray	Salt Lake	Yes
'42-'43	Logan	Cache	No
'43-	Woods Cross	Davis	Yes

Present Status - Taking into consideration the relatively few nutria which have escaped and the smaller number intentionally released, it appears that these animals are doing well at this time. The probable present range as shown on the map (Figure 25) has been plotted from trappers reports. It will be noticed that the range of the nutria is confined to swampy, marshy, or stream areas, perhaps similar to their native habitat in South America.

The taking of kits by trappers is a good indication that nutria are reproducing successfully in their new habitat. The large size of the nutria will naturally limit the numbers which an area can support. It is not known at the present time whether nutria will continue to reproduce successfully, and if so, whether they will be detrimental to our native muskrats.[2] Many people are interestedly watching the progress of the South American swamp beaver in its new home in Utah.


STATE OF UTAH
FIGURE 25. NUTRIA
• Point of introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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ELK

Scientific Name - Cervus canadensis.[1]

Common Names - Elk; Wapiti; American Elk; American Wapiti; American Stag.[1]

General - The elk needs little description to people of the western part of the United States. It is a very large deer of typical appearance, the males having large, widely-branching antlers. The large light-colored rump patch, the dark chestnut-brown head and neck, and the yellow to brownish back are characteristic.

The elk is native to western North America where it lives in mountainous country in the summer and moves into lower more-sheltered valleys in the winter. Its chief foods consist of twigs, grasses, leaves, and green plants, and it is well adapted to almost all of the mountainous parts of Utah.[1]

It was important to early Utah pioneers chiefly because of its size and food value. Elk were numerous throughout Utah in pre-pioneer and in pioneer days, but continued shooting greatly reduced their numbers. In 1895 John Sharp, Territorial Fish and Game Warden, indicated that they were quite rare in the territory.[2]

From 1898, when a closed shooting season on elk was established, until 1913, when the first large introduction of outside elk occurred, the numbers of elk in the state were few.[3] A 1900 report from the State Fish and Game Commissioner indicated that only a remnant of the former Utah herd was left.[4] In 1905 the wardens of Salt Lake, Sevier, Emery, Iron,

Washington, Juab, and Carbon Counties reported that there were no elk left in their respective counties. However, at this time the wardens of Sanpete, Summit, and Uintah Counties reported that a few still survived in their counties.[5] In 1912 the Uintah County warden reported that a small herd of elk in northeast Uintah County was holding its own.[6]

First Introduction - The March 1, 1893, Deseret Evening News carried an article which stated that, Eight head of elk from two to three years of age have been shipped to Antelope Island". It is believed by John E. Dooly, Jr., whose father was one of the owners of the island at that time, that these elk were obtained in Uintah County.

The first introduction of elk from outside the state occurred in 1912 when a shipment of 10 head was received from Jackson Hole, Wyoming, by the State Fish and Game Commissioner (Table 5). This shipment was of unknown sex and age composition. These 10 elk were placed in a private preserve in Salina Canyon, in Sevier County.[6] It is known that a number of these were still living in 1913.

Subsequent Introductions - The first large introduction of outside elk occurred in 1913. A shipment of 100 head of unknown sex and age composition was received from Yellowstone National Park by the State Fish and Game Commissioner. Three of these died in transit, and the remaining 97 elk, all in good condition, were distributed as follows: 39 head were placed in the preserve in Salina Canyon, where the 1912 introduction of 10 head had been made; 10 head were released in Salt Lake County in Bingham Canyon; and 48 head were liberated

on Mt. Nebo in the Uintah National Forest. All of the above described areas had formerly supported elk. The desire of Utah hunters to reestablish the elk as an important big game animal in the state prompted this introduction.[7] As far as is known the above plants did well and served as nucleus herds when later introductions were made.

David H. Madsen, Chief Warden of the State Fish and Game Department, received 25 head of elk from Gardner, Montana which he liberated on Mt. Nebo in the spring of 1914. The purpose was to introduce new blood into the herd liberated there in 1913.[7] In the spring of 1915, 50 head of unknown sex and age composition were received by the State Fish and Game Department from Yellowstone Park, and these were released, 24 head in Logan Canyon in Cache County, and 24 head on East Mountain in Emery County. Two of the above shipment died in transit, and it was believed that the surviving elk were not in as good condition as those of previous shipments from Yellowstone. In the fall of 1915 the State Fish and Game Commissioner estimated that there were 700 head of elk in the state.[8] In 1917, five head were purchased by Smithfield sportsmen from Gardner, Montana, and these were liberated in Smithfield Canyon in Cache County.[9] Wardens reports of 1918 indicated that the introduced herds were reproducing themselves satisfactorily.[10]

The continued growth of the introduced elk herds was watched apprehensively by livestock men. In 1919 and 1920 increases in numbers of elk were reported by wardens.[11] There were estimated to be from 3,000 to 4,000 elk in Utah in

1923. In this year the first elk damage was reported from Utah County. In 1924, 21 head from the Mt. Nebo herd were killed under state supervision in order to reduce the damage to farms in that area.[12] In this same year 24 head of elk of unknown sex and age composition were shipped into the state from Jackson Hole, and these were placed on Cedar Mountain in Iron County.

Nine head from Jackson Hole were liberated on Mt. Timpanogos in Utah County in the spring of 1925.[9] By this time it was apparent that further introductions of outside elk were unnecessary. Elk herds were large enough that transplanting operations could be used to stock new areas.

Table 5 ELK INTRODUCTIONS INTO UTAH

Year	Locality	County	Number
1912	Salina Canyon	Sevier	10
1913	Salina Canyon	Sevier	39
1913	Bingham Canyon	Salt Lake	10
1913	Mt. Nebo	Juab	48
1914	Mt. Nebo	Juab	25
1915	Logan Canyon	Cache	24
1915	East Mtn.	Emery	24
1917	Smithfield Canyon	Cache	5
1924	Cedar Mtn.	Iron	24
1925	Mt. Timpanogos	Utah	9
		Total	218

In 1925 a Board of Elk Control was established to supervise the elk herds in the state. This board was made up of livestock men and sportsmen, and its purpose was to take care of the problems that the rapidly increasing elk were creating. In many areas elk were becoming a serious menace to farmers and livestock men.

The Board of Elk Control authorized the first elk hunt

for the fall of 1925. One-hundred ten hunters on Mount Nebo killed 110 elk, and 140 hunters on the Cache district bagged 104 elk. Again in the fall of 1926 a restricted hunt was authorized, and 302 hunters killed 218 head of elk.[13] Restricted hunts have been permitted each fall since 1925 and the majority of the hunters have been successful each year.

At this time the elk problem had become a serious one, and a good deal of strong feeling existed between sportsmen and livestock men. It was apparent that a more efficient supervisory board was necessary. In 1932 the Board of Big Game Control was established with the approval of both the sportsmen and livestock men.[14]

In 1935, at the suggestion of the Board of Big Game Control, the state began fencing haystacks against elk. In this same year approximately 40 head of elk were stampeded over a ledge by livestock men in the vicinity of Mount Nebo.[15] It was quite evident at this time that elk herds in certain areas would have to be reduced in numbers. This was accomplished by increasing the numbers of elk permits issued.

From 1927 until the present time a number of transplants from the Mount Nebo herd to other areas throughout the state occurred. Records of these transplants were obtained from the files of D. M. Gaufin of the Utah State Fish and Game Department (Table 6).

Table 6 ELK TRANSPLANTS IN UTAH

Year	Locality	County	Number
1927	Heaston Preserve	Tooele	14
1938	Ogden Canyon	Weber	14
1943	Range Creek	Carbon	7
1943	Marsh Peak	Uintah	6
1944	Castleton	Grand	8
1945	Pilot Mtn.	Box Elder	12
1946	Heber Mtn.	Wasatch	9
1946	Dove Creek	Box Elder	9
1948	Needle Mtns.	Iron	19
		Total	98

At this writing all of these transplants are known to be doing well except the 1944 Castleton plant and the 1946 Heber Mountain plant. It is reported that most of the elk put on the La Sal National Forest near Castleton in 1944 have moved into Colorado. Those planted in southeast Wasatch County near Heber Mountain in 1946 are reported to have disappeared.*

During the winter of 1947, 27 head of elk strayed into Box Elder County, just west of Washakie from Idaho. It is believed that these were from an elk plant made in southern Idaho in the early spring of 1947. At this writing some of these are still known to be present along the Utah-Idaho border in the area west of Washakie.**

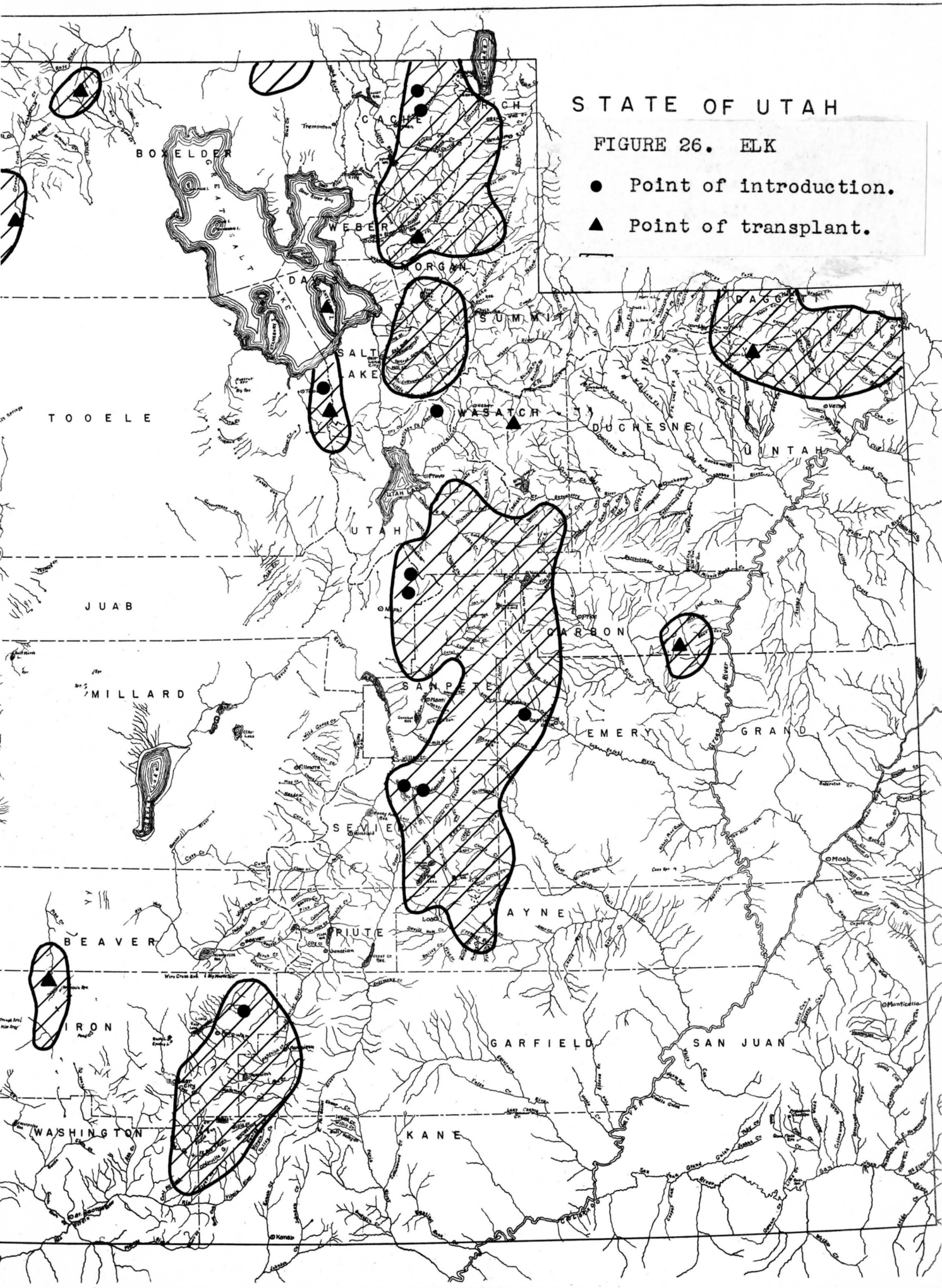
Present Status - Since 1925, when elk hunting was first legalized in Utah, in the neighborhood of 9,000 head have been harvested by hunters. This figure, along with the

* Information obtained from D. M. Gaufin, Utah State Fish and Game Department, Salt Lake City, Utah.

**Information obtained from Arnold Christensen, State Fish and Game Warden, Bear River City, Utah.

present estimate of about 4,000 head of elk in Utah today, indicates that the introduction of this formerly abundant species has been very successful.[9] At the present time elk are found in many areas of the state (Figure 26).

Since 1943 careful management has maintained Utah's elk herd at about the desired numbers. In recent years the purchase of winter elk range, the fencing of farms in areas where elk damage has occurred, the winter feeding of elk, and the payment of elk damages to farmers by the State Fish and Game Department have all helped a great deal in alleviating a troublesome situation.


STATE OF UTAH
FIGURE 26. ELK
● Point of introduction.
▲ Point of transplant.
BOX ELDER
CACHE
WEBER
DAVIS
GREAT SALT LAKE
MORGAN
SUMMIT
DAGGETT
SALT LAKE
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
SANPETE
MILLARD
EMERY
GRAND
SEVIER
BEAVER
PIUTE
WAYNE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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ANTELOPE

Scientific Name - Antilocapra americana.[1]

Common Names - Antelope; Pronghorn; American Antelope; American Pronghorn.[1]

General - The antelope is a rather small ungulate of about 100 pounds, both sexes having simple one-pronged horns. These horns are shed annually, and the new horns form on permanent bony cores which are left. The sexes are colored alike. The back is tan to dark brown, with black on the mane. The rump, side of the body, and side of the head are yellowish to whitish, and there is a dark brown to black patch under the ear. The chest, belly, and inside of legs are whitish to creamy, and the underside of the neck is crossed with two broad white bars.

Its chief foods are grasses, twigs, and weeds. Originally the antelope ranged throughout almost all of western North America between central Alberta, Saskatchewan, and Manitoba to central Mexico. Its preferred home is on the treeless, grassy, or desert plains of the West.[1]

When the first Mormon pioneers came to Utah they found antelope very numerous.* They were an important source of food. Organized hunting reduced their numbers greatly, and in 1895 they were reported to be very rare.[2]

In 1898 antelope were put on the protected list by the State Fish and Game Warden.[3] In 1905 there were reported

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*Information obtained from Utah Cooperative Wildlife Research Unit files.

to be no antelope in Salt Lake, Sevier, Washington, Juab, Summit, and Carbon Counties, and they were reported to be very scarce in Emery, Sanpete, and Iron Counties.[4] Undoubtedly early censuses were not very complete or accurate. It was reported to Leo Rosko, wildlife management student, that in 1905 antelope were numberous in the area between Cedar City and Lund in Iron County. Wardens reports of 1909 and 1910 indicated that antelope were increasing in Kane, Washington, Grand, San Juan, Beaver, and Millard Counties.[5]

In 1914 antelope were thought to exist only in Washington, Grand, Iron, Tooele, Millard, and Juab Counties.[6] Wardens reports indicated that they were still present in the above-named counties in 1915.[7] From this time until 1947 very little was known concerning the status of antelope in all counties of the state except Daggett County.

First Introduction - In 1928 a sizeable herd of unknown composition strayed into Daggett County from Wyoming (Table 7). The cause of this migration from Wyoming into Utah is unknown. It is possible that from time to time prior to this small bands may have drifted into this same general area, but the 1928 migration was large enough to be very apparent. Habitat conditions in this area were ideal and the antelope became well established. Since 1928 antelope have increased in numbers in this county, and the herd has developed into a sizeable management herd.

In 1944 there were estimated to be 700 head in Daggett County. The first legal antelope hunt in Utah was authorized for the fall of 1945 in this region. Seventy-five permits

were issued on a lottery basis. Sixty-five hunters appeared and 64 of these were successful.[8] In the fall of 1946 a second hunt was permitted and 66 hunters bagged 62 antelope. Again in the fall of 1947 a hunt was authorized and 85 of 96 hunters were successful.*

Subsequent Introductions - Late in the winter of 1945, five females and one male were trapped from the Daggett County herd and moved to an area 15 miles southwest of Vernal.[8] Estimates of the state's antelope population by counties in 1947 by the United States Forest and Grazing Services were as follows: Daggett 700; Box Elder 15; Tooele 6; Juab 71; Millard 5; Beaver 35; Iron 118; and Emery 35.* The first intentional introduction of out-of-state stock occurred on January 12, 1948, when 21 head of unknown sex and age composition were brought in a covered one-ton truck from Laramie, Wyoming, and liberated about 5 miles west of Rosette in Box Elder County. The vegetation of this area is chiefly of sage-grass and sage-juniper types, and water conditions are excellent. At the time of liberation, these antelope seemed to be in fairly good condition.** Farmers in this region reported some antelope damage to cereal crops during the summer of 1948. At this writing these antelope are reported to be still present in this region.

On January 20, 1948, three males, three females, and

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* Information obtained from Utah Cooperative Wildlife Research Unit files.

**Information obtained from Jay Udy, Utah State Fish and Game Department, Salt Lake City, Utah.

seven fawns were released on the Rozel Flats in Box Elder County. These were also obtained from Laramie, Wyoming and were apparently in good condition at the time of release. This area is roughly 40 miles east and south of the Rosette plant. Here also, the vegetation is of chiefly sage-grass and sage-juniper types.* According to Arnold Christensen, State Fish and Game Warden, a small herd of antelope had existed in this area for several years prior to this planting.

Eleven head, two males, two females, and seven fawns trapped from the Daggett County herd were released nine miles southeast of Lund, Iron County on February 19, 1948. Prior to 1900 this area had supported many antelope.* During November of 1948, 137 head were trapped in Daggett County, and these were released in the desert valleys west of Beaver and Cedar City in Beaver and Iron Counties. At the time of liberation all of these antelope were thought to be in fair condition.[9]

Table 7 ANTELOPE INTRODUCTIONS AND TRANSPLANTS IN UTAH

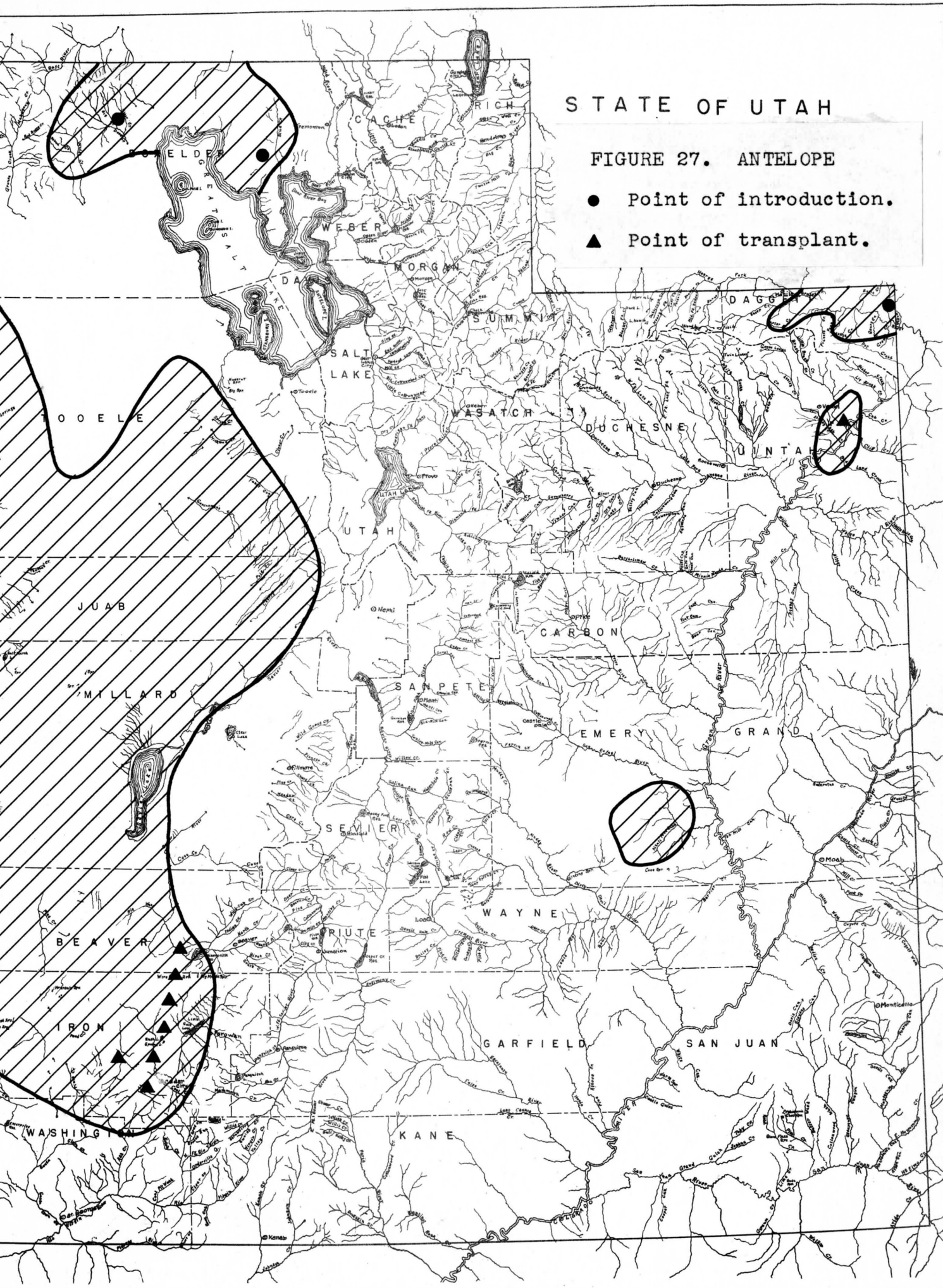
Year	Locality	County	Number
1928	Daggett County	Daggett	Unknown
1945#	S. W. of Vernal	Uintah	6
1948	Rosette	Box Elder	21
1948	Rozel Flats	Box Elder	13
1948#	Lund	Iron	11
1948#	Escalante Desert	Iron & Beaver	137
		Total	188

#Indicates transplant from Daggett County herd.

Present Status - The three highly successful antelope

*Information obtained from Utah Cooperative Wildlife Research Unit files.

hunts mentioned above, the 154 head transplanted from state herds to new areas, and the recent antelope population estimates of State Fish and Game Department officials give hope that under proper management the antelope may become an important big-game animal in the state. At the present time antelope are found in four widely scattered areas in Utah (Figure 27).


STATE OF UTAH
FIGURE 27. ANTELOPE
● Point of introduction.
▲ Point of transplant.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
SUMMIT
DAGGETT
TOOELE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
MILLARD
CARBON
SANPETE
EMERY
GRAND
SEVIER
WAYNE
PIUTE
BEAVER
IRON
GARFIELD
SAN JUAN
KANE
WASHINGTON

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BUFFALO

Scientific Name - Bison bison.[1]

Common Names - Buffalo; Bison, American Buffalo; American Bison.[1]

General - The American buffalo, or bison is a very large bovine animal, having short curved horns, long shaggy hair, and a high hump at the shoulder. The hair on the head and chin is very long, being especially heavy on the males. The male is dark brown on the head, back, lower neck, legs, and tail, and lighter brown on the rest of the underparts. Females show less contrast between the shades of brown on the head and back, otherwise they are like the males.

The buffalo was formerly distributed over most of the great plains from Texas north to Saskatchewan and Alberta, and from the Rocky Mountains east as far as western New York. It exists today only in game preserves, zoological parks, or in privately owned preserves. The natural food of the buffalo consists principally of grasses.[1]

In pre-pioneer days there was a much used buffalo wallow near the entrance of the Jordan River into Great Salt Lake.[2] In 1824 and 1825 Jedediah Smith made a trip down the Bear River into Salt Lake Valley, and he reported buffalo to be very plentiful all along the way. J. R. Walker, a leader of one of Bonneville's parties, reported that they killed buffalo in Salt Lake Valley in August of 1833. In August of 1843 Captain Fremont, while descending the Bear River, found the buffalo gone and the Indians in poor condition. When the Mormon pioneers entered Great Salt Lake Valley they found

no living buffalo but did see bones.[3] In his 1854 governor's message to the Utah Territoral Legislature, Brigham Young tells of the Indians leaving for their usual hunt among the buffalo along the Green River. He undoubtedly referred, however, to that area in Wyoming through which the Green River flows rather than the area in Utah.

First Introduction - In the early 1880's the United States Government brought an unknown number of buffalo into Utah from Wyoming for the use of the Indians. The exact place where the Indians kept them is unknown, but it is believed to be in what is now Tooele County. After keeping them only a short time the Indians sold the buffalo to a livestock company which kept them near Blackrock on Great Salt Lake. This company in turn sold them to a Mr. Glassman of Ogden, who maintained them at this same place. For several years they were exhibited at Blackrock, but this proved unprofitable, and in 1893 the remaining 12 buffalo were sold to John E. Dooly, Sr. and W. H. White of the Island Improvement Company.*

On February 15, 1893 these 12 buffalo were released on Antelope Island in Great Salt Lake.** Every five to six years bulls from the vicinity of Yellowstone Park were imported to keep up the quality of the herd. The buffalo multiplied and did very well on the island. From about 1897

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* Information obtained from W. H. Olwell, Manager, Island Improvement Co., Salt Lake City, Utah.

**Deseret Evening News, March 1, 1893.

until 1926 shooting permits were sold to sportsmen at the price of $200 per buffalo by the Island Improvement Company.* In 1915 there were about 200 head of buffalo on Antelope Island according to the Salt Lake Tribune of May 16, 1915.

On December 17, 1920 a bill was introduced by Representative Welling to purchase Antelope Island and make it a natural buffalo preserve, but this did not pass the house.** An article carried in the Salt Lake Tribune of January 10, 1921, indicated that there were about 230 head on the island at that time.

In 1926 it was estimated that there were 400 buffalo on the island, and all of these except 25 were sold to a Fort Pierre, South Dakota firm.*** Because of increased numbers of cattle on the island, the Island Improvement Company continued to control the numbers of the remaining buffalo, and at the present time there are about 20 head left on the island. As the buffalo are hosts for many cattle parasites, and since it is impossible to dip them, the Island Improvement Company plans to dispose of them.****

Subsequent Introduction - Fifteen females and 3 males from the Yellowstone Park herd were received by the State Fish and Game Department in April of 1941, and these were

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* Information obtained from John E. Dooly, Jr., Salt Lake City, Utah.

** Salt Lake Tribune, December 18, 1920.

*** Salt Lake Tribune, April 9, 1926.

**** Information obtained from W. H. Olwell, Manager, Island Improvement Co., Salt Lake City, Utah.

liberated in an area adjacent to the Robbers Roost country south of Green River. In April of 1942 five male buffalo from the Yellowstone herd were planted in this above-described area to replace the three original bulls, which had strayed from the herd. The above plants were instituted by the Carbon-Emery Wildlife Federation, and it was agreed that if the stocking was a success the herd would not be allowed to increase beyond 100 animals.[4] A 1947 survey by Dr. Jessop B. Low, of the Utah Cooperative Wildlife Research Unit, and D. M. Gaufin, of the State Fish and Game Department, showed that the majority of the herd had moved south and that they were increasing slowly. Evidence of this was shown by the presence of five young calves. The only buffalo found in the area where they were originally released were two bulls. At the present time the majority of the herd is located east of Hanksville just east of the Henry Mountains (Figure 28). Their move carried them from the San Rafael Grazing District, where the original agreement was made, into the Richfield Grazing District.*

Present Status - At the present time the status of this species in Utah is quite precarious. Many complaints have already come from livestock interests in this area. However, the fact that some increase in the size of the herds has been noted is quite encouraging. It is possible that under good management and protection a buffalo herd of limited size can

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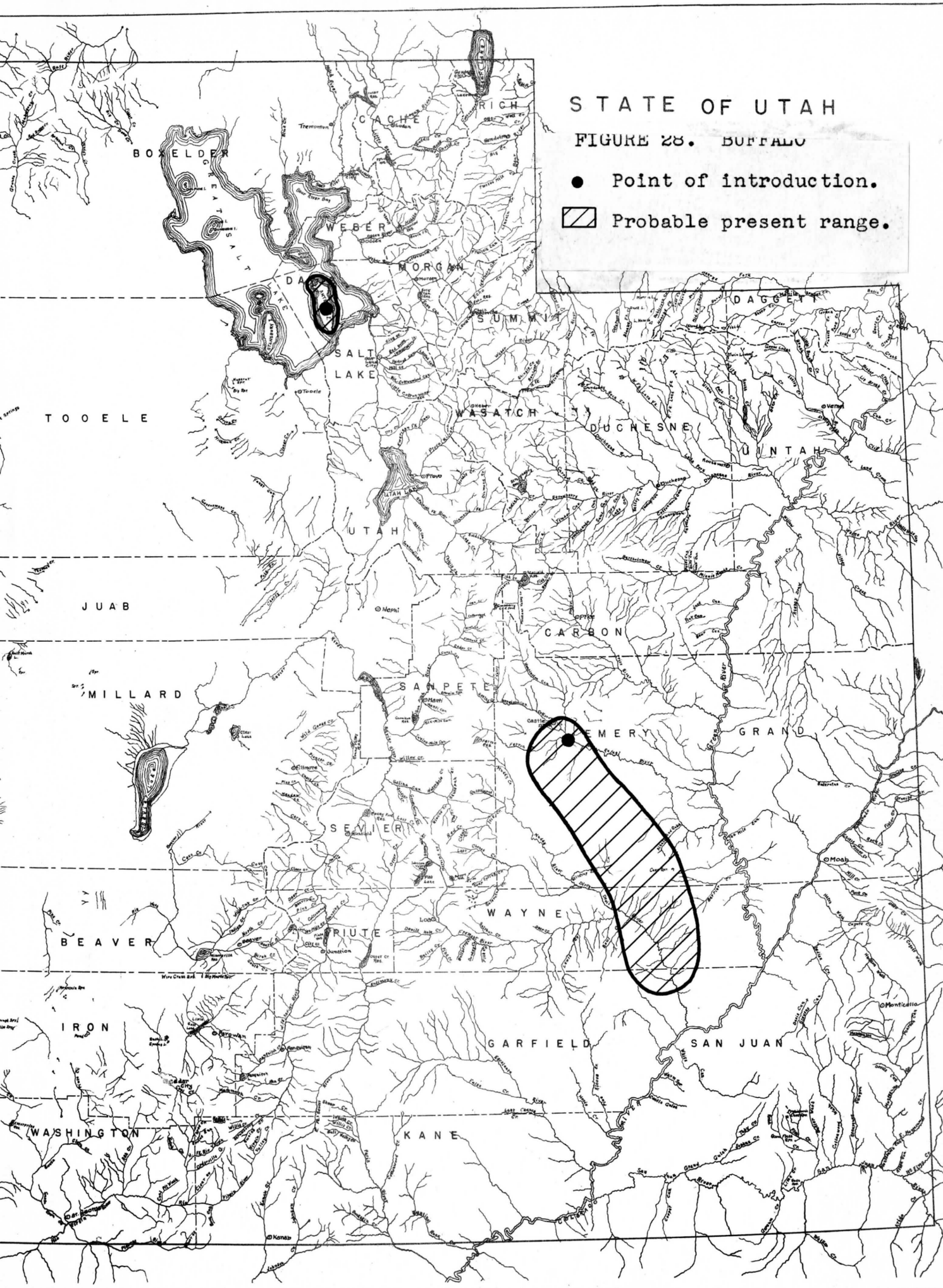
*Information obtained from Utah Cooperative Wildlife Research Unit files.

be maintained in this general area.


STATE OF UTAH
FIGURE 28. BUFFALO
● Point of introduction.
Probable present range.
BOX ELDER
CACHE
RICH
WEBER
MORGAN
SUMMIT
DAGGETT
TOOELE
SALT LAKE
WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
CARBON
MILLARD
SANPETE
EMERY
GRAND
SEVIER
WAYNE
BEAVER
PIUTE
IRON
GARFIELD
SAN JUAN
WASHINGTON
KANE

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SUMMARY

1. This paper deals with the first known, subsequent early introductions, and in some species all known introductions of fishes, game birds, and game and fur-bearing mammals into Utah.
2. A total of 36 species of fishes and game animals have been introduced into Utah.
3. Twenty-five species of fishes have been introduced since the first introduction in 1871.
4. Six species of game birds have been introduced.
5. Five species of game and fur-bearing mammals have been introduced.
6. Of the 25 species of fishes introduced, 14 are known to be present in Utah waters today.
7. All of the game bird species which have been introduced are found in the state today. Several of these species, however, are present only in limited numbers.
8. Of the five species of game and fur-bearing mammals introduced into the state, all are reported to be present today.
9. It is recommended that before any further introductions of new species, or of species treated herein, are considered, careful study and investigation be made of past records and other factors pertaining to the possible success of such introductions.