

AN ANNOTATED CHECK LIST OF THE FISHES OF NEVADA'

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These notes provide the first exhaustive list of Nevada fishes to appear in print, and are intended as the basis for a more comprehensive report on the fish fauna of the State. Progress has been made on the latter, but some time will pass before its completion. We have followed the outline of Shapovalov and Dill (1950) for uniformity and have utilized their proposed official common names in nearly all cases. A double asterisk (**) has been used to indicate introduced species, while a single asterisk (*) denotes native fishes which have been known to be planted in parts of the State where they did not originally belong.

Without the work and interest of certain individuals, even so simple a thing as the following list would not be possible of completion. Foremost among these are Drs. Carl L. Hubbs and Robert R. Miller, who have collected and studied the fishes of Nevada for many years, and who have been responsible for producing a logical continuity from what was long a fine ichthyological tangle. Particular thanks are due Dr. Miller for the subsequent interest he has shown in our efforts to promote a better understanding of the fish fauna of the State. His many comments and notations received in correspondence have solved many of our problems.

Cooperative efforts of the University of Nevada Museum of Biology and the State Fish and Game Commission over the past several years have resulted in innumerable additions to the Museum collection, to a point where a comprehensive assemblage of Nevada fishes now exists here for the first time.

CHECK LIST

Native Species and Established Exotic Species

Of the following 55 species, 21 are introduced.

Family Salmonidae. The Salmon and Trout Family.

1. *Oncorhynchus tshawytscha* (Walbaum). King Salmon.*

Formerly, at least, this species ascended the rivers Owyhee, Bruneau, Jar-bridge and Salmon in northeastern Nevada, tributaries to the Snake. Unsuccessfully planted in west-central Nevada.

2. *Oncorhynchus nerka* (Walbaum). Red Salmon.**

- 2a. *Oncorhynchus nerka kennerlyi* (Suckley). Kokanee Red Salmon.**

This landlocked variety of the Red Salmon is currently being planted in Lake Tahoe, Walker and Pyramid Lakes. It has maintained itself in the vicinity of Tahoe for several years (Donner Lake), but its establishment in the

¹ Submitted for publication March, 1951.

remnant lakes of Pleistocene Lake Lahontan in west-central Nevada is still uncertain.

3. *Salmo trutta* Linn. Brown Trout.**

3a. *Salmo trutta fario* Linné. Brown Trout.**

Widely planted and established in the Lahontan drainage of western and central Nevada. As the Truckee River, beginning at Lake Tahoe and ending in Pyramid Lake, slowly changes from a fresh, sparkling, cold, mountain cutthroat trout stream to a dammed-up, silted-up, warmed-up polluted stream, the Brown Trout has become increasingly the most important game fish, in spite of the fact that the Rainbow Trout has been most often planted there over the years.

While both this variety and the Loch Leven Trout (*S. trutta levenensis* Walker) have undoubtedly been planted in the State, hatchery practice has mixed the two to such an extent it is no longer practicable to attempt to separate them. Miller and Alcorn (1945) nominally referred all Nevada specimens known to them to *S. t. fario*.

4. *Salmo darki* Richardson. Cutthroat Trout.*

4a. *Salmo clarki henshawi* Gill & Jordan. Lahontan Cutthroat Trout.*

The form native to the Lahontan basin of Nevada. Now extinct in many places where it was formerly abundant, such as Pyramid Lake. Mixed by hatchery practice with other varieties, such as the Yellowstone cutthroat, and with the rainbow. A population existing in Summit Lake, Humboldt County, Nevada, may be the only pure strain of the Lahontan Cutthroat Trout left—there is some evidence, meager as yet, that it may have been introduced from Pyramid Lake many years ago by the Indians.

4b. *Salmo clarki lewisi* (Girard). Yellowstone Cutthroat Trout.**

Long a popular hatchery fish, this variety has been widely disseminated in Nevada over a period of many years.

4c. *Salmo clarki utah* (Suckley). Utah Lake Cutthroat Trout.**

Like the preceding subspecies, *S. c. utah* probably does not exist in pure strain in Nevada at the present time, since east-central Nevada, where it was originally introduced from Utah Lake, has also been planted with the other two varieties of *S. clarki*.

5. *Salmo gairdneri* Richardson. Rainbow Trout.**

5a. *Salmo gairdneri irideus* Gibbons. Southcoast Rainbow Trout.**

Without doubt, the rainbow has been the most popular and widely disseminated of hatchery trout—within our own State it has often been planted to the exclusion of other trout, and in New Zealand and India, among other countries, it now provides added zest to the sport of fishing. It hybridizes readily with the cutthroat to the disadvantage of the latter, even in streams where the cutthroat is the better adapted of the two species if either were present alone. Hardly a Nevada stream exists which has not, at one time or another, been planted with rainbow.

5b. *Salmo gairdneri regalis* Snyder. Royal Silver Rainbow Trout.

Described from the deep waters of Lake Tahoe, the Royal Silver has always been rare, and now may be extinct.

5c. *Salmo gairdneri smaragdus* Snyder. Emerald Rainbow Trout.

Presumed to be the Pyramid Lake counterpart of the Royal Silver, this variety is also seemingly extinct. If, as supposed, it spawned in the lake, its loss must be attributed to other factors than those which killed off the river-spawning Lahontan Cutthroat (i.e., inability to leave the lake for the annual up-river spawning run due to low water and obstructions at the mouth of the river). It is more likely that the Emerald Rainbow was a river spawner also and died out for the same reasons as did the Lahontan Cutthroat. Those species which can spawn in lakes, such as the Lahontan Tui Chub, Lahontan Redside Shiner, three species of suckers and the introduced Sacramento Perch and Carp, still maintain themselves in Pyramid Lake in large numbers.

6. *Salvelinus fontinalis* (Mitchill). Eastern Brook Trout.**

An early importation into Nevada, planted widely, regularly and successfully. Its adaptation to cold waters makes it an admirable species for high mountain streams and lakes.

7. *Salvelinus malma* (Walbaum). Dolly Varden Trout.
Occurred, at least originally, in some of the upper Snake River tributaries in northeastern Nevada, and may have been planted sparingly in some northern sections of the State, but no reliable information is available at present.
8. *Salvelinus namaycush* (Walbaum). Lake Trout.**
This large charr has long maintained itself successfully in Lake Tahoe, where it has never been very popular and where it has borne the brunt of blame for the reduction of the native cutthroat population. Probably mismanagement of spawning streams tributary to the lake has been a much more important factor in reducing the cutthroat than have been the presence and habits of the Lake Trout.
9. *Coregonus williamsoni* Girard. Mountain Whitefish.
Native to Lahontan basin waters and the area north of Nevada. A rather mediocre sport fish whose capabilities will be more-and-more appreciated by the ever-increasing angler in a land of declining fishing waters.

Family Catostomidae. The Sucker Family.

10. *Pantosteus lahontan* Rutter. Lahontan Mountain-sucker.
A small species native to the Lahontan drainage. Interestingly enough, it now occurs in some of the headwaters of the Feather River's North Fork, west of the Sierra Nevada crest, and now has theoretic access to the Sacramento drainage system (Rutter, 1908).
11. *Pantosteus intermedius* (Tanner). White River Mountain-sucker.
Described from a restricted locale in southeastern Nevada [Pahrnagat Valley (Alamo), Lincoln County], and known only from the type locality.
12. *Catostomus tahoensis* Gill & Jordan. Tahoe Sucker.
The commonest and one of the largest of the Lahontan suckers, this species is one of the characteristic fishes of the Lahontan system, to which it is confined. Lacustrine specimens from Pyramid Lake grow to a length in excess of two feet, and of late years, breeding schools of smaller individuals (12") have been about the only fish capable of making spawning runs up the greatly curtailed Truckee River. Snyder's *C. arenarius*, the Sandbar Sucker, of Pyramid Lake, may not be distinct from *C. tahoensis*.
Kimsey (1950) has recently called attention to another instance of possible stream capture in which several typical Lahontan species may have been naturally diverted from the Lahontan system to the Sacramento system in the Lake Tahoe area. Similarly involved are the species *Richardsonius egregius* and *Rhinichthys nubilus robustus*.
13. *Catostomus latipinnis* Baird & Girard. Flannelmouth Sucker.
A member of the Colorado River system, formerly, at least, of some importance in the Indian fishing economy. Grows to a length of about two feet.
14. *Catostomus macrocheilus* Girard. Columbia Basin Sucker.
First recorded from the Snake River tributaries of northeastern Nevada by Miller and Miller (1948) (see *Oncorhynchus tshawytscha*). Partial to colder waters, and once a staple food for the Indians of the region.
15. *Catostomus columbianus* (Eigenmann & Eigenmann). Columbia River Sucker.
Only lately resurrected from the synonymy of *Pantosteus jordani* by Miller and Miller (1948), this species occurs with *C. macrocheilus*.
16. *Catostomus ardens* Jordan & Gilbert. Utah Sucker.
Recorded from the Nevada tributaries of the Bonneville system of Utah.
17. *Chasmistes cujus* Cope. Cui-ui Sucker.
Native to Pyramid Lake, habitually running up the lower Truckee River in large spawning schools in late spring-early summer. Formerly, at least, they ascended the river through moderately swift water to a point some 35 miles above the lake in spite of their relatively weak swimming powers. Interestingly enough, no one has ever been able to identify young Cui-ui in either river or lake sucker populations, and the adults are evidently deep water inhabitants during all but the spawning season. For the past four years (1948-1951), they have been unable to enter the river because of insufficient inflow; fortunately for the species, which is a good food fish, taken by Indians and whites alike, they will spawn in the lake when unable to go up-river.

² Miller (1950) has reduced *Oristivomer* to subgeneric status.

18. *Xyrauchen texanus* (Abbott). Razorback Sucker.
A large, grotesque, hump-backed species native to the Colorado River system.

Family Cyprinidae. The Carp Family (Minnow, Chub, Dace, Shiner, etc.).

19. *Cyprinus carpio* Linné. Carp.**
Distributed in nearly every suitable water in Nevada, from the early days, and very abundant in most places. Among other places, Pyramid Lake is host to an immense population, some individuals of which exceed three feet in length.
20. *Carassius auratus* (Linn). Goldfish.**
This species has been turned loose in a few restricted areas of the State, and seems to maintain itself, although not abundantly.
21. *Orthodon microlepidotus* (Ayres). Sacramento Blackfish.**
A specimen of this California species was identified by Dr. Robert R. Miller from material collected by the writers in a small pond on the outskirts of Reno. The pond contained "chub," Green Sunfish and Northern Black Bullheads, and during the winter of 1948-1949 the weather was severe enough to winter-kill everything except the catfish, which were safely buried in the mud. After examining the "chub," Dr. Miller wrote that one specimen was an *Orthodon* and the remainder were hybrids, presumably between *Orthodon* and *Sip hateles bicolor obesus*. He offered the tentative suggestion that *Orthodon* may have gained access to the pond through fish rescue material sent up from the Sacramento Valley. At any rate, this is the only known instance of such an introduction, but the possibility exists that *Orthodon micro lepidotus* is present in other parts of the Truckee Meadows surrounding Reno.
22. *Acrocheilus alutaceum* Agassiz & Pickering.⁴ Chiselmouth.
A rather small member of the Columbia River fauna, associated with *Ptychocheilus oregonense*, *Catostomus macrocheilus* and *C. columbianus*.
23. *Ptychocheilus oregonense* (Richardson).⁴ Columbia Squawfish.
A distinctive, pike-shaped member of the Columbia River system, being found in the Snake River tributaries of northeastern Nevada.
24. *Ptychocheilus lucius* Girard. Colorado River Squawfish.
This species occurred, at least originally, in considerable numbers in the Colorado River, and has the distinction of being the largest carp in the United States, attaining lengths up to five feet, and weights up to 80 pounds. Because of changes in those portions of the Colorado River adjoining Nevada, where the river has become a reservoir, the large squawfish has become a rarity.
25. *Gila robusta* Baird & Girard. Bonytail Chub.
25a. *Gila robusta robusta* Baird & Girard. Tributary Bonytail Chub.
25b. *Gila robusta elegans* Baird & Girard. Colorado River Bonytail Chub.
These two varieties impinge only on extreme southern Nevada, where *G. r. robusta* seems to be a form inhabiting smaller streams and tributaries of the Colorado River, while *G. r. elegans* is a highly streamlined swift-water species occurring in the main river channel. The so-called "Virgin River Bonytail Chub" (*G. r. seminuda* Cope & Yarrow) is probably best regarded as an intergrade between *robusta* and *elegans*.
26. *Gila jordani* Tanner. Nevada Bonytail Chub.
Recently described (1950) from Pahranaagat Valley (Alamo), Lincoln County, and known only from the type locality, this chub is very close to *G. robusta*; it probably represents a segment of the original *G. robusta* population which has been isolated in the midportion of Pleistocene White River, at one time connected by a permanent flow of water to the Colorado River.
27. *Gila atraria* (Girard). Utah Chub.*
A member of the Bonneville Basin fauna of Utah and extreme eastern Nevada, this species has been planted in isolated waters around the periphery of its natural range in east-central Nevada, in several valleys without connection to the Bonneville drainage proper (Miller and Alcorn, 1945).

* This is the "Greaser Blackfish" of the official California list. We follow the official American Fisheries Society listing of "Sacramento Blackfish" as being preferable both by wider prior acceptance and by lacking some of the connotations of the California name.

As pointed out by Miller in correspondence, *A. alutaceus* and *P. oregonensis* are orthographically incorrect, since both generic terms are neuter.

28. *Richardsonius egregius* (Girard). Lahontan Redside Shiner.
A common bait minnow native to the Lahontan system, occurring in great numbers in both streams and lakes, from the Sierra to the Nevada flatlands. Some individuals in spawning colors, as observed by the authors in the Reese River (central Nevada), may be as resplendent as any fish in the State.
29. *Richardsonius balteatus* (Richardson). Northern Redside Shiner.
29a. *Richardsonius balteatus hydrophlox* (Cope). Bonneville Redside Shiner.
This variety of the Northern Redside Shiner lives in the Snake River system above the falls, occurring in the Bonneville drainage and in the northeastern Nevada streams tributary to the Snake (see *Oncorhynchus tshawytscha*) (Miller and Miller, 1948).
29b. *Richardsonius balteatus: balteatus x hydrophlox*.
Among the material collected by Miller and Miller (1948) from the Snake River tributaries in northeastern Nevada were specimens which Dr. Robert R. Miller considers to be hybrids between the typical subspecies, *R. b. balteatus*, and the Bonneville subspecies, *R. b. hydrophlox*.
30. *Siphateles bicolor* (Girard). Tui Chub.
30a. *Siphateles bicolor obesus* (Girard). Lahontan Tui Chub.*
The very common and widespread chub of the Lahontan system, occurring in Pyramid Lake in large schools ; occasionally completely isolated in small springs, such as the thriving population in Fish Springs, southeastern corner of Honey Lake Valley, Washoe County. Snyder's *Leucidius pectinifer*, described in 1918 from Pyramid Lake, has been reduced to a subspecies of *S. bicolor*, of which it is considered to be the lacustrine form (Hubbs and Miller, 1943). However, on the basis of recent data, we are convinced that *pectinifer* has no valid standing as a taxonomic unit. Genetically, *pectinifer* might be preserved to indicate tui chub with fine gill rakers (as Shapovalov and Dill, 1950, have done), just as it might be feasible, under some circumstances, to so distinguish between people with blue eyes and people with brown eyes. Chub with coarse gill rakers occur side-by-side with individuals with fine gill rakers, contrary to Snyder's supposition that he could observe them segregating in separate schools in the lake. Gill net sampling in Pyramid Lake by the writers has resulted in catches of chubs with both types of gill rakers at the same time and place, and there is no sexual correlation between raker differences. Whether there are any differences in feeding habits between the two types remain to be seen, but the above sampling, during the winter, showed both to be mixed in the same schools and to be feeding on the bottom on the same materials. It is possible that at other times of the year one form may have an advantage over the other in being able to obtain more plankton from the water, but at present, that is a dubious point.
31. *Rhinichthys nubilus* (Girard). Speckled Dace.
31a. *Rhinichthys nubilus nubilus* (Girard). Columbia Speckled Dace.
This variety occurs in the northeastern Nevada tributaries of the Columbia-Snake system.
31b. *Rhinichthys nubilus robustus* (Rutter). Lahontan Speckled Dace.
This is the subspecies common to the Lahontan system, widely disseminated. With *Richardsonius* and *Siphateles*, it constitutes the common bait minnow.
31c. *Rhinichthys nubilus nevadensis* Gilbert. Amargosa Speckled Dace.
Restricted to the Amargosa drainage system of southwestern Nevada and the adjacent Death Valley region of California.
31d. *Rhinichthys nubilus velifer* Gilbert. White River Speckled Dace.
Described originally from Pahrnagat Valley (Alamo) in southeastern Nevada, and restricted to the relict White River system, which no longer has any continuity.
32. *Moapa coriacea* Hubbs & Miller. Moapa Dace.
An interesting relict warm water form, known only from the type locality (Warm Springs, Clark County), and but recently described (1948). Although Warm Springs is directly connected to the Colorado River, being the headwaters of the Moapa River, colder waters below the springs seem an effective barrier to the species, completely isolating it.
33. *Eremichthys acros* Hubbs & Miller. Soldier Meadows Dace.
Another endemic warm water species, known only from its type locality in southwestern Humboldt County, Nevada. Originally an affluent of Pleistocene Lake Lahontan, the springs and stream of Soldier Meadows now lie several

hundred feet above Lahontan valley floors, completely isolated from neighboring streams. Associated with *E. acros* are remnant populations of *Rhinichthys nubilus robustus* and *Catostomus tahoensis*, while farther down the same stream, in colder water, *E. acros* disappears and the shiner *Richardsonius egregius* and the chub *Siphateles bicolor obesus* occur with *Rhinichthys* and *Catostomus*.

34. *Lepidomeda vittata* Cope. White River Spinedace.
This seldom reported dace has been listed by Gilbert (1893) from Pahrnagat Valley (Alamo), Lincoln County, and this record has been much cited by later authors. Tanner (1936) discussed it from southwestern Utah.
35. *Plagopterus argentissimus* Cope. Woundfin.
Known from the Virgin River, Clark County.

Family Ameiuridae. The Catfish Family.**

36. *Ictalurus lacustris* (Walbaum). Channel Catfish.**
36a. *Ictalurus lacustris punctatus* (Rafinesque). Southern Channel Catfish.**
Planted in the Colorado River, and now common in the lower reaches of the river.
37. *Ictalurus catus* (Linné). White Catfish.**
Has been established in the vicinity of Fallon, Churchill County, but does not seem to be particularly successful (Miller and Alcorn, 1945).
38. *Ameiurus nebulosus* (Le Sueur). Brown Bullhead.**
38a. *Ameiurus nebulosus nebulosus* (Le Sueur). Northern Brown Bullhead.**
One of the earliest introductions into the State, and now a very common game fish in the Lahontan drainage. Miller and Alcorn (1945) also recorded it from Pahrnagat Valley (Alamo), Lincoln County.
39. *Ameiurus melas* (Rafinesque). Black Bullhead.**
39a. *Ameiurus melas metes* (Rafinesque). Northern Black Bullhead.**
Known from various parts of the Lahontan system, associated with *A. nebulosus*. Introduced into the Reese River in 1942 (Miller and Alcorn, 1945).
39b. *Ameiurus melas catulus* (Girard). Southern Black Bullhead.**
Miller and Alcorn (1945) recorded this form from near Las Vegas, Clark County. No other records of its occurrence in the State have been seen.

Family Cyprinodontidae. The Killifish Family.

40. *Crenichthys baileyi* (Gilbert). White River Springfish.
A small thermal species confined to the remnants of Pleistocene White River in southeastern Nevada.
41. *Crenichthys nevadae* Hubbs. Railroad Valley Springfish.
The counterpart of *C. baileyi* immediately to the west.
42. *Empetrichthys merriami* Gilbert. Ash Meadows Springfish.
Confined to Ash Meadows, Nye County, a portion of the Amargosa drainage system of southwestern Nevada-southeastern California.
43. *Empetrichthys latos* Miller. Pahrump Springfish.
43a. *Empetrichthys latos latos* Miller. (Manse Ranch.)
43b. *Empetrichthys latos pahrump* Miller. (Pahrump Ranch.)
43c. *Empetrichthys latos concavus* Miller. (Raycraft Ranch.)
The species occurs only in Pahrump Valley, Nye and Clark Counties; while it is just a matter of a few miles distant from Ash Meadows, *E. latos* is effectively isolated from the adjacent population of *E. merriami* and has been, evidently, for some time.
44. *Cyprinodon nevadensis* Eigenmann & Eigenmann. Amargosa Pupfish.*⁵
44a. *Cyprinodon nevadensis mionectes* Miller. Ash Meadows Amargosa Pupfish.
44b. *Cyprinodon nevadensis pectoralis* Miller. Ash Meadows Amargosa Pupfish.
This small species, native to the Amargosa drainage originating in southwestern Nevada and terminating in Death Valley, California, seldom exceeds two inches in length and, like most of our cyprinodonts, is a warm water type.

* This is the "Nevada P 0 0 0 0" of the official California list. We prefer "Amargosa P 0 0 0 0" as the more geographically suitable term.

Robert R. Miller has subdivided the Amargosa region population into five subspecies, of which only the above two Ash Meadows (Nye County) varieties belong on the Nevada list.

Miller and Alcorn (1945) have recorded an instance of the probable introduction of the species into the Las Vegas area which, while not too distant from the Amargosa basin is, nevertheless, in a different drainage system.

45. *Cyprinodon diabolis* Wales 1930. Devil Pupfish.*

This tiny species, the smallest of the genus, lives only in the limestone pothole, Devil's Hole, in Ash Meadows, Nye County, where the waters maintain a constant temperature of approximately 33°C. (92°F.). In the winter of 1946-47, the writers transferred some 75 specimens to a nearby warm spring connected with the principal drainages of the valley (La Rivers, 1950b), in an effort to provide some sanctuary for the unique species in the not then remote contingency that tampering with the waters of Devil's Hole by local interests would result in extermination of the species. Since *C. diabolis* was in contact with *C. nevadensis* in the new location, there is always the possibility of failure to establish by reason of hybridization. No data are yet available concerning the outcome of the experiment, but cooperative plans are underway by the Nevada Fish and Game Commission and the University of Nevada to plant the species in one of several suitable warm water springs in west-central Nevada.

Family Poeciliidae. The Top-minnow Family.**

46. *Gambusia affinis* (Baird & Girard). Mosquitofish.**

46a. *Gambusia affinis affinis* (Baird & Girard). Western Mosquitofish.**

Widespread throughout the State in all suitable waters, warm and cold. Some of the largest specimens seen were from the cold waters of the Virgin River in extreme southern Nevada. In warm, near-stagnant waters such as Wally Hot Springs (Genoa), Douglas County, they can become extremely abundant and are then usually much infected with fungus and other diseases.

Family Percidae. The Perch Family.**

47. *Perca flavescens* (Mitchill). Yellow Perch.**

Has been established in restricted areas in west-central Nevada.

Family Centrarchidae. The Sunfish Family.**

48. *Micropterus dolomieu* Lacépède. Smallmouth Black Bass.**⁶

48a. *Micropterus dolomieu dolomieu* Lacépède. Northern Smallmouth Black Bass.**

There have been several known introductions of this black bass into Nevada, some from the early days, but according to Miller and Alcorn (1945), most of these were unsuccessful, and the species seems to be well established only in Lake Mead in southern Nevada.

49. *Micropterus salmoides* (Lacepède). Largemouth Black Bass.**

An early importation, the largemouth is common to suitable waters over the State from Lake Mead to the Ruby Marshes and west-central Nevada. The Ruby Marsh locality, first planted in the early 1930's (Trelease, 1948), became for a time an excellent black bass water, but no forage fish were planted with the black bass and overpopulation soon reduced their unit size. During the severe winter of 1948-1949, winter kill nearly eliminated the fish population, giving the needed opportunity to introduce forage fish, the outcome of which is not yet evident.

50. *Lepomis cyanellus* Rafinesque. Green Sunfish.**

Miller and Alcorn (1945) could list but one instance of the importation of this species into the State, but the Green Sunfish is rather widely distributed in west-central and southern Nevada. In the Truckee Meadows (Reno) region, the species is common in many ponds, where it is often mistaken for Bluegill.

We suggest the collective term "blackbass" for the same reasons "sunfish, pupfish, whitefish, catfish, blackfish," etc., are in general usage. The word "bass" has been used so loosely as to have little definitive meaning as such.

51. *Lepomis macrochirus* Rafinesque. Bluegill.**
 51a. *Lepomis macrochirus macrochirus* Rafinesque. Common Bluegill.**
 This animal has been planted in various parts of Nevada, on several different occasions, but seems common now only in Lake Mead, Clark County.
52. *Archoplites interruptus* (Girard). Sacramento Perch.**
 This species shares honors with the bullheads as one of the earliest game fish introductions. For a good many years it has supported a substantial sport fishery in Walker Lake, Mineral County. It also occurs in most suitable ponds and reservoirs in west-central Nevada, as well as in Pyramid Lake; lack of fishing in the latter since the decline there of the Cutthroat Trout makes the status of the Sacramento Perch as a game fish unknown at present.
53. *Pomoxis annularis* Rafinesque. White Crappie.**
 At this writing (1951), there is but one known importation of this species: 200 two-and-a-half inch fish from a Georgia hatchery were planted in Fish Creek Springs, 25 miles south of Eureka, Eureka County, in March of 1950, and it is somewhat early to judge the effectiveness of the experiment.
54. *Pomoxis nigromaculatus* (Le Sueur). Black Crappie.**
 Several implantations of Black Crappie have been made in west-central and southern Nevada in the last 25 years, but the species appears to be common, at the present time, only in Lake Mead, Clark County.

Family Cottidae. The Sculpin Family

55. *Cottus bairdi* Girard. Mottled Sculpin.
 55a. *Cottus bairdi beldingi* Eigenmann & Eigenmann.⁷ Smooth Mottled Sculpin.
 A characteristic native of the upper, cooler reaches of all major streams of the Lahontan system, as well as areas to the north of Nevada.

SUPPLEMENTARY LIST

Exotic Species—Unsuccessfully Introduced

The following list is concerned with those species which have been unsuccessfully planted in the State. Miller and Alcorn (1945) have previously summarized most of these data.

Family Salmonidae. The Salmon and Trout Family.

1. *Oncorhynchus keta* (Walbaum). Chum Salmon.**
 Widely planted in west-central Nevada in 1939, but none are known to have survived (as would be expected).
2. *Oncorhynchus kisutch* (Walbaum). Silver Salmon.**
 Planted in the Carson and Truckee rivers in 1913.
3. *Oncorhynchus nerka* (Walbaum). Red Salmon.**
 3a. *Oncorhynchus nerka nerka* (Walbaum).**
 According to the Nevada Fish and Game Commission Biennial Reports for the years 1936, 1938 and 1941, several attempts, evidently unsuccessful, were made to establish "*Oncorhynchus nerka*," the "Sockeye Salmon," in west-central Nevada. It is presumed that these were the anadromous form.
4. *Salmo salar* Linné. Atlantic Salmon.**
 4a. *Salmo salar sebago* Girard. Landlocked Atlantic Salmon.**
 An early introduction into Lake Tahoe and the Carson and Truckee rivers (1880's), where they were reported a temporary source of good fishing.
5. *Salmo clarki* Richardson. Cutthroat Trout.**
 5a. *Salmo clarki stomias* Cope. Greenback Cutthroat Trout.**
 Planted in 1892-1893 in the Humboldt River near Elko, presumably from a Federal hatchery in Colorado. If any of the strain survived, mixture with other subspecies of cutthroats soon obliterated its characteristics.

⁷ This has long been considered the species *C. beldingi*, and is still so regarded by some taxonomists. We are used to using the name specifically, but since the group is a plastic one whose entities are difficult to separate, the differences in treatment do not seem important.

6. *Salmo gairdneri* Richardson. Rainbow Trout.**
 6a. *Salmo gairdneri gairdneri* Richardson. Northcoast Rainbow Trout.**⁸
 Presumably brought into the State in the early 1900's, as "steelhead" trout, but unknown here at the present time.
7. *Salmo aguabonita* Jordan. Golden Trout.**
 1918-1919 plants were made in the Lake Tahoe region, but no survivals are known.
8. *Coregonus clupeiiformis* (Mitchill). Lake Whitefish.**
 8a. *Coregonus clupeiiformis clupeiiformis* (Mitchill). Great Lakes Whitefish.**
 First brought into Lake Tahoe in the 1870's from Lake Michigan spawn, and later introduced into the Eureka area of central Nevada.

Family Thymallidae. The Grayling Family.**

9. *Thymallus signifer* (Richardson). Arctic Grayling.**
 9a. *Thymallus signifer tricolor* Cope. American Arctic Grayling.**
 Introduced into Ruby Valley, Elko County, within the past ten years, and probably previously into the Lake Tahoe region. The junior author planted some 500 fingerlings in Kings Canyon near Carson City, Ormsby County, in 1948, but none are known to have survived.

Family Clupeidae. The Herring Family.**

10. *Alosa sapidissima* (Wilson). American Shad.**
 An early plant made in the mid-1880's in the Colorado River near Nevada was not successful.

Family Cyprinidae. The Carp Family.**

11. *Tinca tinca* (Linné). Tench.**
 A shipment was sent to a Virginia City (Storey County) applicant in 1885.

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* This is the "steelhead rainbow trout" of the official California list.

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