

GOLD PANNING IN ARIZONA
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Mineral Report No. 7
by
Diane Bain

**Department of Mines & Mineral Resources
Mineral Building, Fairgrounds
Phoenix, Arizona 85007**

THE ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

The objective of the Department is to promote the development of Arizona's mineral resources. This is accomplished through technical research, field investigations, compilation of information into a mineral occurrence data base and disseminating information through publications, personal contacts and seminars.

The Department's mining engineers and geologists assist mining and exploration companies, prospectors and others interested in Arizona's minerals with mineral processing, mineral land acquisition, exploration, mine development, financing, government regulations and marketing.

The Department is a service agency and does not regulate, tax, or require any type of registration. The agency provides assistance that is tailored to meet the diverse needs of the public. The following is a partial list of services which the Department offers:

- Maintain a site specific data base of unpublished reports and maps that includes 5,000 mine files and indexes of 10,000 computerized Arizona mineral occurrences.
- Maintain an information bank and library of mineral and mining information including a mine map library (hard copy and microfilm), government publications, periodicals, and unpublished master and doctorate theses.
- Gather and disseminate information on commodities and markets.
- Suggest target areas for exploration activity.
- Suggest properties for acquisition and development.
- Assist individuals and companies in their dealings with State regulatory agencies to facilitate their mining and exploration activity.
- Produce publications in the form of mineral reports, annual directories, technical reports, annual mineral industry surveys and information circulars. These include *Laws and Regulations Governing Mineral Rights in Arizona*, *Directory of Active Mines in Arizona*, *Manual for Determination of Status and Ownership of Arizona Mineral and Water Rights*, and others. A current listing of the Department publications is available upon request.
- Maintain the Arizona Mineral Museum.



HAPPY PANNING!



GOLD PANNING IN ARIZONA

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GLOSSARY

Alluvial deposit - sand and gravel transported by flowing water

Amalgamation - a process which utilizes mercury to extract gold from pulverized ore or for collecting fine gold in placer operations

Arrastre - a primitive grinding mill for crushing ore, often mule or donkey powered

Auriferous - containing gold

Bench - a terrace along a stream bank left by the former water flow

Claim jumping - staking over someone else's claim

Colors - very small gold particles in the sand in a gold pan

Concentrates - prospectors' term for the mixture of gold and black sands

Dredging - the use of a vacuum or scoop to suck up sand and gravel below water

Dry washer - a machine for extracting gold from gravel and sand without water

Eluvial deposit - residual or "in place" deposit on hillside below outcrop

Fool's gold - popular term for any mineral that looks like gold, commonly iron pyrite

Free gold - Gold uncombined with other substances

Grubstake - supplies provided to a prospector in return for a share in the claim

Lode - vein or deposit of ore in place in rock, as opposed to a placer deposit

Mother Lode - specifically refers to an area in California on the western slopes of the Sierra Nevada Mountains; more generally, it is the parent lode deposit of a placer occurrence

Native gold - gold as it occurs naturally, uncombined with other elements

Ore - a mineral of sufficient value and quantity to be mined at a profit

Pay Streak - a concentration of placer gold in sand and gravel

Placer - a deposit of gold in sand or gravel as opposed to a lode deposit contained in rock

Sluice - a trough using hydraulic power to concentrate gold-bearing material

Tailings - the waste or leavings of a mineral processing operation

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Table 6. Conversion Table for Measuring Gold					
	Grains	Pennyweight	Troy Ounce	Avoir. Ounce	Grams
1 Grain	1	0.0417	0.0021	0.0023	0.0648
1 Pennyweight	24	1	0.0500	0.0549	1.5552
1 Troy Ounce	480	20	1	1.0971	31.1040
1 Avoir. Ounce	437.5	18.2292	0.9115	1	28.35

A WORD ABOUT SAFETY

1. **Take plenty of water.** This is the most important rule for desert survival. Do not count on drinking stream water. Much of the stream water in Arizona is unpotable.
2. **Let someone know where you are going** and when you plan to be back.
3. **Take a map** with you and know how to read it. Topographic maps, preferably 7.5 min., are good for field use. Familiarize yourself with the area in which you will be panning.
4. **Watch where you put your hands and feet** to avoid conflict with unfriendly wildlife. Be cautious when turning over stones or logs.
5. **Stay out of mine shafts** and underground mine workings no matter how safe they appear. Decaying timber, unstable ground, and harmful gases can make old mines hazardous.
6. **Do not trespass** on posted property. This is not just good manners, but a wise safety precaution.
7. **Beware of dry washes** if there is a chance of distant storms. Desert drainages are well-known for going from dry to raging torrents in moments.
8. **Take a first aid course** and bring a first aid kit.
9. **Use common sense.**

are likely spots. As streams meander the sand bars move laterally, so older deposits may be covered, waiting for the wily gold panner.

Broadening of a stream will also slow the flow of water and force deposition. The confluence of two streams, where the currents meet are worth investigation.

Gold accumulates in crevices, cavities, and potholes. Any natural pocket, such as those formed by ridges and depressions in the stream bed, act in the same manner as a gold pan in concentrating the grains of gold.

Drain pipes and culverts under roadways may trap gold above them due to restriction of flow. Obstacles such as boulders and tree roots receive deposits on the downstream side.

Black sand (usually magnetite), because of its high specific gravity, behaves very much like gold. Arizona prospectors often say, "No black sand - no gold." Not all black sand contains gold, but it is so often a companion to gold that any areas where black sand is concentrated should be panned.

Stream transport tends to round large nuggets and flatten smaller ones. Therefore, sharp, angular nuggets indicate the lode source was nearby. Trying to trace a placer back to its lode is not often rewarding, however.

HOW TO IDENTIFY GOLD

The old prospectors' adage, "If you wonder if it's gold or not - it's not," is a surprisingly accurate way to identify gold. Gold often has a distinctive, unmistakable look. The best way to get an 'eye' for gold is by actually looking at placer gold. The collection of Arizona placer

gold on display at the Department of Mines and Mineral Resources' Arizona Mineral Museum will assist you in acquiring identification skills. The Department's staff will be happy to identify your find if you are in doubt. Placer gold can also be found on display at the University of Arizona in Tucson, the Arizona Sonoran Desert Museum in Tucson, and various mineral and mining equipment shops.

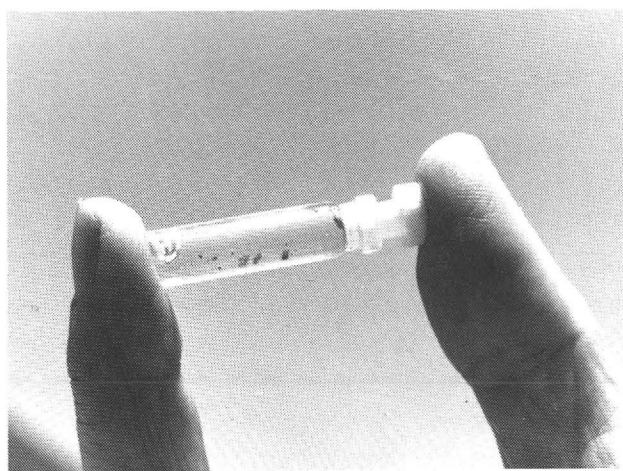


Figure 10. Vial containing flakes of gold. Note the size of the grains of gold.

Here are some clues that may help spot gold amongst its common look-alikes; pyrite and mica.

- ✕ Pyrite breaks when struck, gold flattens.
- ✕ Mica flakes are crushed easily with a finger nail.
- ✕ A cubic shape is a good indication of pyrite
- ✕ Gold is golden in color, not brassy.
- ✕ Pyrite glitters in the sun, gold does not.
- ✕ Gold moves reluctantly in the pan.



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Photographs on page 1 and 18 are by Jeff Scovil.

HOW TO PAN

A gold pan is the only equipment that is absolutely necessary to get started gold panning, although a small hand trowel or shovel, is very helpful. If you pursue this activity you may want to add a classifier, tweezers, a magnet, and a magnifying glass. Gold pans may often be purchased at hardware stores, but the local prospecting shops are recommended. They are a good source of information on panning, often have displays of nuggets, and are interesting places to visit. They are listed in the telephone directory under 'mining equipment.' Carrying extra water and a large tub will enable you to pan in areas that do not have water.

Due to gold's high specific gravity, panning is an effective way to separate gold from the sand and gravel of a stream. If you pan correctly, and there is gold in the sediments you are panning, the gold will end up in the bottom of your pan when the lighter materials have been washed away. Panning is a simple process, but difficult to describe. Watch an experienced panner if you have an opportunity.

Fill the pan about half full of gravel, sand, or dirt. Submerge the pan in water, breaking up any clumps with your hands and throwing away large rocks, after verifying they are not large nuggets. Shake the pan underwater. Raise the pan, moving it in a circular motion and tipping it away from you so the top layer flows out of the pan. The motion of the pan will settle the gold to the bottom, duplicating the action of the stream that concentrates the gold in the stream bed.

Occasionally tapping the rim of the pan with the palm of your hand will help settle the gold to the bottom. Speed is not a priority. Take the time to pan carefully. Manually rake larger grains from the pan. Repeat this process until a small amount

(less than half a cup) of material is left in your pan. This concentration of heavier material should be worked carefully. Swirl the pan in a circular motion to fan out the concentrate in a 'tail.' Gold, if present, will show in the tail.

You are far more likely to find "flakes" (or colors) of gold than nuggets, so check your pan carefully. Black sand, if common magnetite, can be removed easily with a magnet. Put the magnet in a plastic bag to avoid the necessity of continually cleaning the magnet after use. Tweezers and an eyedropper can be useful in retrieving gold from your pan. It is frustrating to find a few flakes of gold and not have a place to put them, so carry along a small container. A glass vial filled with water shows off your find admirably, but a pill container will do.

Prospecting Tips

The following suggestions for finding placer gold are a combination of science and folk wisdom. Find what works best for you by trial and error.

Because of gold's great density, it seeks a downward course. Just as it works its way down in a gold pan, gold settles downward in sand and gravel to bedrock, down into cracks, downhill, downstream. Eventually it goes out to the sea. Keeping this in mind will help you find favorable places for gold to accumulate. These accumulations of placer gold are called "pay streaks." The richest portion of a placer usually rests on or near bedrock if the gold grains have had time to be sorted.

In stream deposits, look for areas where the stream loses velocity. The carrying ability of water is diminished when it is slowed, forcing the stream to release its load of sediments. Sand bars, deposited on the inside of bends in stream beds,

Table 4
U. S. Bureau of Land Management

State Office:

3707 N. 7th Street, Suite 300
P O Box 16563
Phoenix, Arizona 85011
Phone: 241-5547

Kingman Resource Area Office:

2475 Beverly
Kingman, Arizona 86401
Phone: 757-3161

Phoenix District Office:

2015 W. Deer Valley Road
Phoenix, Arizona 85027
Phone: 863-4464

Safford District Office

425 E. 4th Street
Safford, Arizona 85546
Phone: 428-4040

Yuma District Office

3150 Winsor
Yuma, Arizona 85365
Phone: 726-6300

National Forests and U. S. Bureau of Land Management areas are generally open for mineral entry. Do not pan within National Parks, Indian Reservations, Wilderness Areas, Military Reservations, within 60 feet of the Mexico border, or on railroad right-of-way.

Table 5
U. S. Forest Service.

The U.S. Forest Service Offices can be good sources of information on the area you plan to visit. The following is a list of the U. S. Forest Service District Offices that are located in placer areas.

Coronado National Forest

Douglas District - 364-3468
Nogales District - 281-2296
Safford District - 428-4150
Santa Catalina District - 749-8700
Sierra Vista District - 458-0530

Prescott National Forest

Bradshaw District - 445-7253
Chino Valley District - 636-2302
Verde District - 567-4121

Tonto National Forest

Cave Creek District - 488-3441
Globe District - 425-7189
Mesa District - 835-1161
Payson District - 474-2269
Pleasant Valley District - 462-3311
Tonto Basin District - 467-2236

Arizona State Trust Lands, in general, are not available for recreational use. Development of the minerals on State Land is allowed under a system of State permits. It is a restrictive process and, by its nature, tends to discourage recreational activity. If you wish to pursue a State prospecting, leasing, or production permit, contact the State Land Department, 1616 West Adams, Phoenix, Arizona 85007, phone 542-4621.

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by Diane Bain

"A piece of gold weighing almost 17 pounds was found in the Ruby drift mine. The chunk was lying near the bed-rock, as is the case with most of the gold in the primary Pliocene channels. The finder was naturally somewhat excited at the discovery of the largest piece of gold ever found in that section."
Citizen - October 20, 1891

INTRODUCTION

This publication was written for the beginning, recreational gold panner. It is hoped that some of the information provided may also prove useful for the more serious and seasoned prospector. For those with a sustained interest, the bibliography lists sources of additional and more comprehensive information.

The benefits of gold panning as a recreational activity are many. As an excuse to get out of the city and see more of our beautiful State, it is unparalleled. The most promising placer ground lies in some of Arizona's most appealing geography. The equipment necessary to get started is minimal and inexpensive. Panning is healthy, outdoor exercise in which the whole family can participate.

However, since gold has a fascinating, almost mystical appeal, perhaps a word of caution is warranted. The days of 'striking it rich' gold panning are over. Even the concept of supplementing a regular income is not a realistic expectation. The rewards of gold panning are great, but seldom include monetary gain. The results of your labor will probably end up gracing the top of your dresser or coffee table.

This reality should not restrict your fun. There are enough valid accounts of bonanzas to fuel the

most optimistic of dreams. The remote possibility of a large nugget adds an excitement to the effort. It should also be remembered that an estimated 80% of the world's gold still lies undiscovered!



Figure 1. An Arizona gold nugget.

Definition of Placer Gold

Placer (PLA-ser - pronounced with a short "a") is gold that occurs as grains in sand and gravel accumulations. Lode gold, on the other hand, occurs "in place" as veins or disseminated in solid rock. An estimated 600,000 ounces of placer gold have been mined from Arizona streams since gold was first discovered here in the 1850's. Considering that, in general, Arizona has not had process water available for large operations, this figure is impressive.

HISTORY OF ARIZONA PLACER MINING

In 1912 President Taft signed the statehood proclamation that made Arizona the 48th state using a pen made of gold from Arizona mines. This was an appropriate symbol since this metal has played a major role in the history and development of the State. It was gold that first brought Europeans into the area and later attracted the first settlers. Many of the colorful tales woven into the history of Arizona are tales of gold.

The Spanish Conquistadors entered the area that we now call Arizona in the 1500's in a search for gold. It is doubtful that these expeditions found even minor amounts, since the region was subsequently ignored for 200 years. In the late 1700's Franciscan priests discovered what are believed to be the Arivaca, Baboquivari, and Quijotoa Placers in southern Arizona. Production possibly was significant, but without records we can only speculate.



Figure 2. Gold dredge operating on Lynx Creek, 1933. Photo courtesy of Arizona Geological Survey.

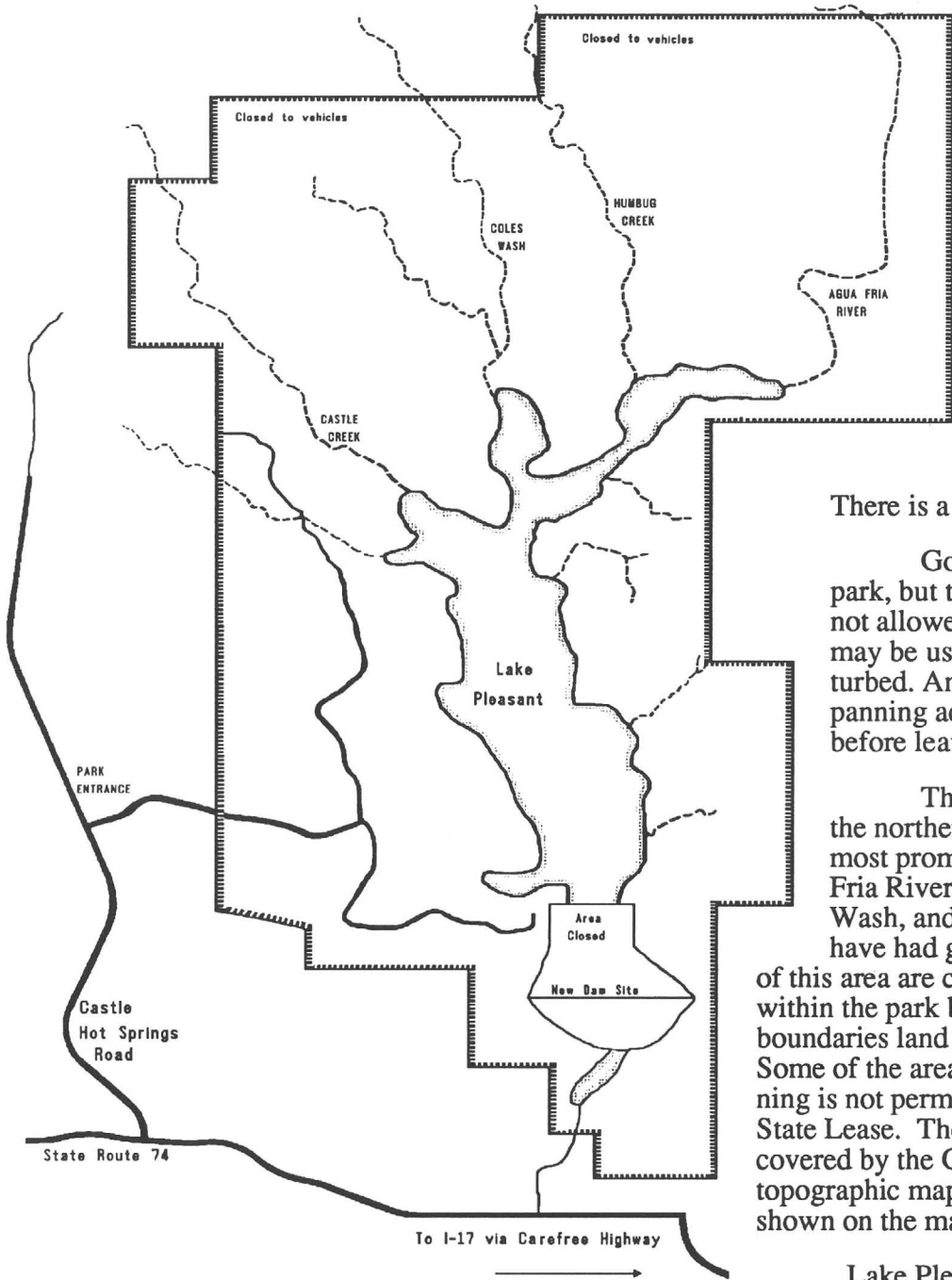
When Arizona became a U. S. Territory in 1848, Americans began filtering into the area looking for placer gold. The majority of them were discouraged '49ers' from the California gold rush, hopeful that the unexplored Arizona washes would prove fruitful.

Col. Jacob Snively discovered the Gila City Placers in 1858 near the confluence of the Colorado and Gila Rivers. Quickly hundreds, and perhaps thousands, of California miners converged on the site. As R. J. Hinton, early historian, described it, "There was everything in Gila City within a few months but a church and a jail." Feverish mining activity continued for about four years. These dry placers have been worked intermittently since that time.

In 1863 a member of a group led by Capt. Pauline Weaver found gold nuggets in a most unlikely place in the Bradshaw Mountains in Yavapai

MARICOPA COUNTY PARKS AND RECREATION DEPARTMENT

Figure 9. LAKE PLEASANT REGIONAL PARK



Lake Pleasant Regional Park, administered by Maricopa County, is located approximately 20 miles northwest of Phoenix on Castle Hot Springs Road. Access is off I-17 (Black Canyon Freeway) to State Route 74 via Carefree Highway. This 14,000 acre park provides for a variety of recreational activity including boating, fishing, picnicking, and camping. There is a nominal entrance fee.

Gold panning is permitted in the park, but traditional "rock collecting" is not allowed. No mechanized equipment may be used, nor may plants be disturbed. Any holes or other evidence of panning activity should be obliterated before leaving.

The drainages that empty into the northern end of the lake are the most promising for panning. The Agua Fria River, Humbug Creek, Coles Wash, and Castle Creek historically have had good placer gravels. Portions of this area are closed to vehicular traffic within the park boundaries. Outside the park boundaries land status becomes a problem. Some of the area is State land and gold panning is not permitted without acquiring a State Lease. The area north of the lake is covered by the Governors Peak 7.5" topographic map. Roads and jeep trails are shown on the map, but not land status.

Lake Pleasant, at an elevation of 1500 feet, can be very hot in summer, but temperatures are generally moderate the rest of the year. Water, restrooms, and concessions are available at select areas of the park. For further information call the Maricopa County Parks and Recreation Department at 272-8871.

Figure 8. LYNX LAKE GOLD PANNING AREA

The U.S. Forest Service has set aside an area for recreational panning in the heart of the historically rich Lynx Creek placer district. An estimated 125,000 ounces of placer gold have been taken from Lynx Creek since gold was first discovered there in 1863 by mountain man Joseph Walker.

The Lynx Lake Mineral Withdrawal Area is located approximately 6 miles southeast of Prescott, off Highway 69. The recreation area extends over 6 miles along Lynx Creek. No private claims may be staked in this area, but unlimited panning is permitted. There is no fee.

Gold pans, picks, and shovels are allowed. Mechanized equipment such as sluice boxes, dredges, or wheelbarrows may not be used. Evacuations should not damage the limbs or root systems of live vegetation or destroy the groundcover.

This area is over 5,000 feet in elevation so winters are cold. Spring, fall, and summer temperatures are moderate. Lynx Creek generally flows year-round, but water levels can get low during a drought. Camping and picnic facilities are available at Lynx and Hilltop Campgrounds within the recreation area near Lynx Lake.

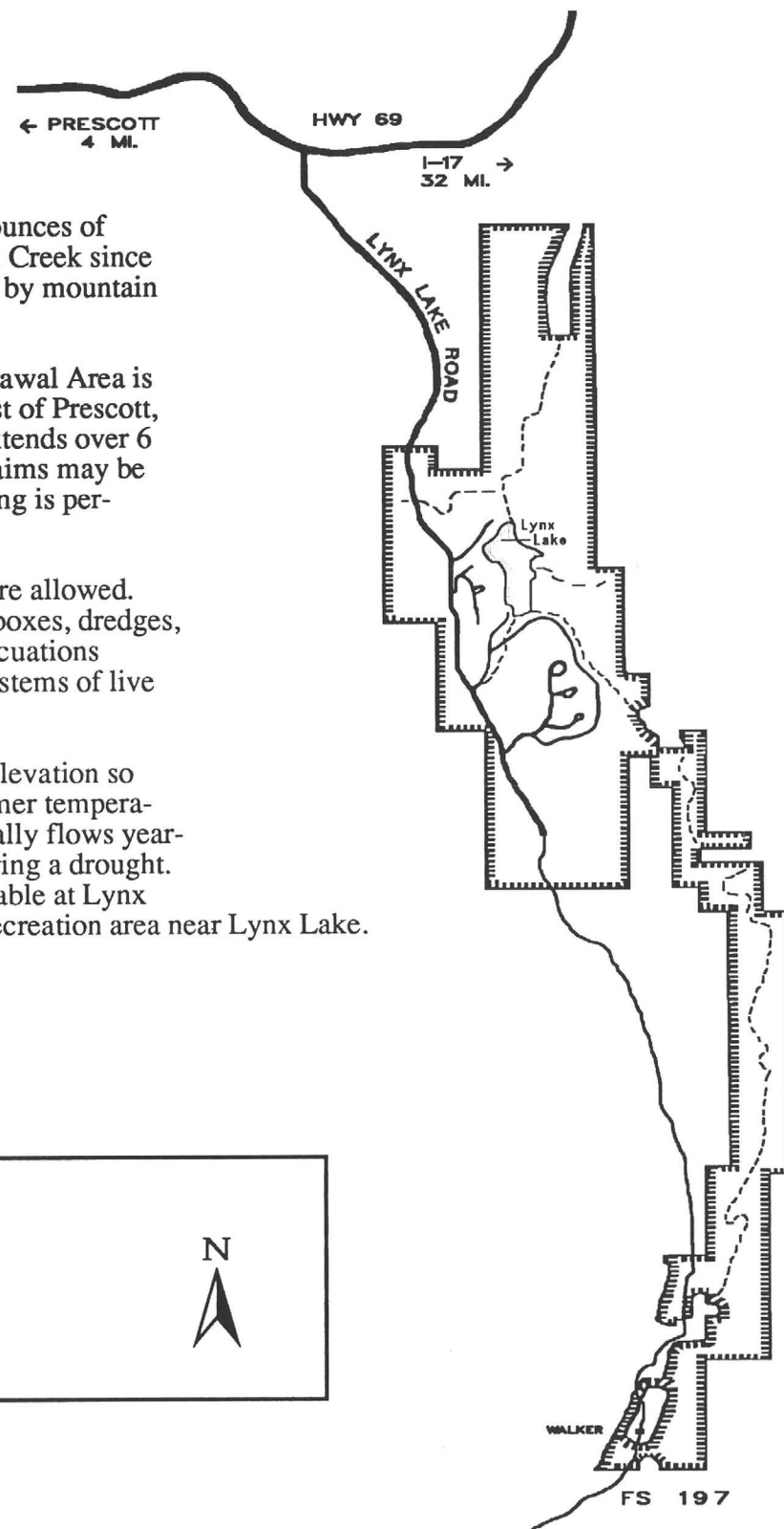
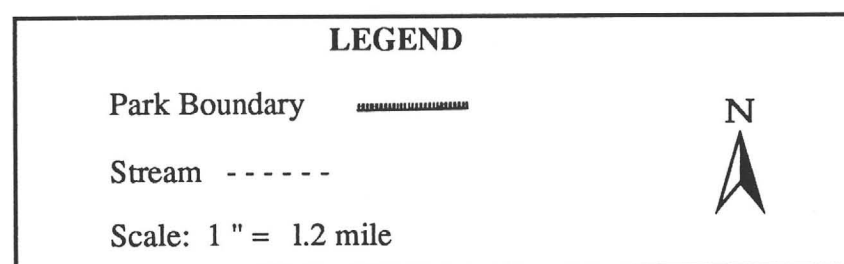
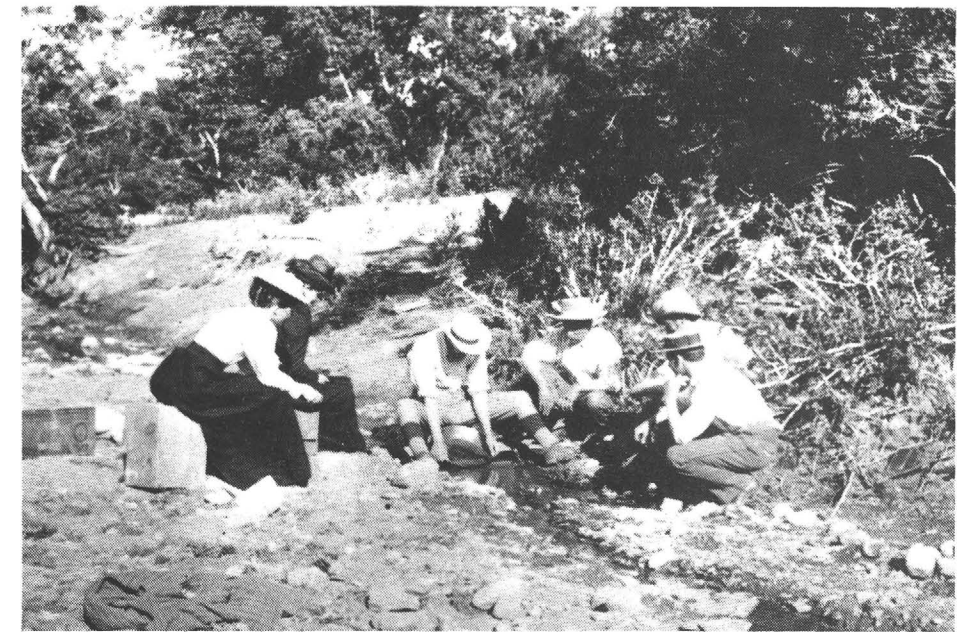


Figure 3. Sharlot Hall, an Arizona pioneer and poet, watches a friend pan on Lynx Creek, circa 1895. Photo courtesy of the Sharlot Hall Museum.



County. This is yet another story of a wandering burro leading to a valuable mineral discovery. These accounts would be more questionable except for the fact that there were a great many burros around in those days, and it is in the nature of burros to stray. This particular burro led the Weaver party up to the top of a small mesa where, in one day, the group picked up over 200 ounces of nuggets. Rich Hill, as it came to be called, was the richest placer discovery in Arizona history, with estimates of gold recovery put at 110,000 ounces.

Joseph R. Walker and his followers, to avoid conscription during the Civil War, set out across Death Valley in 1861. After traveling through California, Colorado, and New Mexico, they eventually made their way through the hostile Apache country of central Arizona. Here they discovered the Lynx, Humbug, Big Bug, and Turkey Creek Placers. Many members of the original Walker party went on to carve names for

themselves in Arizona history. The story of their remarkable journey makes interesting reading.

Despite Indian attacks, transportation difficulties and communication problems, the period between 1860 - 1880 was the most active and productive period of placer mining in the State. All of the major placer districts were worked at this time, including Greaterville, La Paz, Chemehuevis, Lynx Creek, Big Bug, Humbug, Turkey Creek, and Gila City.

Placer mining continued into the 20th century at a reduced rate, gaining impetus during the depression of the 1930's. World War II was a major setback for placer mining, as mining efforts turned to metals more vital to the war effort. Placer mining has never reached the pre-war levels again. Since the war, placer mining in Arizona has been characterized by many small, sporadic operations and increasing recreational activity.

Arizona is currently experiencing a 50-year high in placer activity. Since the lifting of the U. S. government's fixed price for newly-mined gold in 1968, the restoration of the right of citizens to own gold in 1975, and numerous changes in world economics, gold prices have risen to a level that makes gold exploration much more attractive.

AVERAGE YEARLY GOLD PRICE

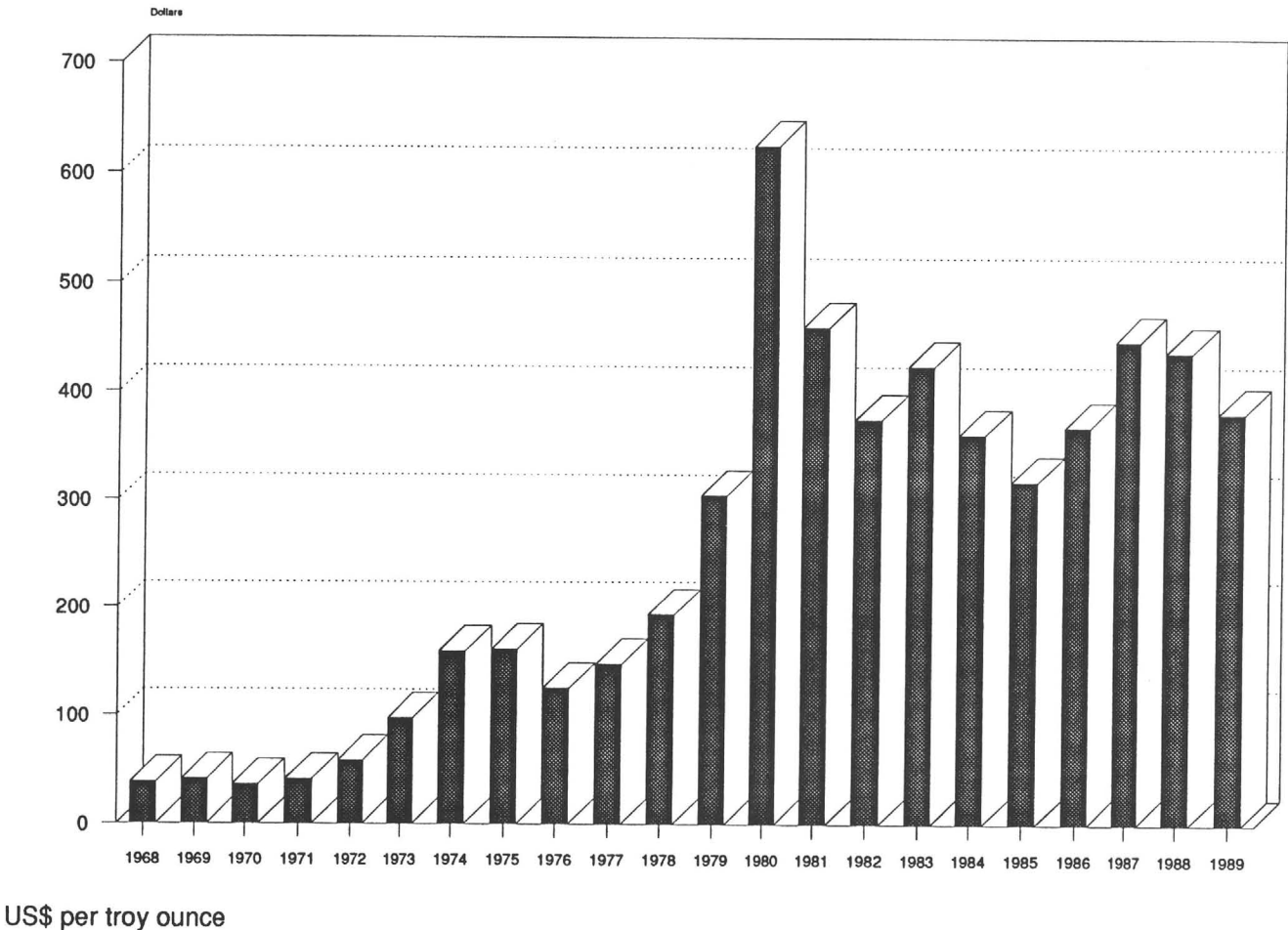


Figure 4. Average yearly gold price using London prices. The average price prior to 1934 was \$20.00, between 1935-68, about \$35.

	Town-ship	Range	Sec-tion	Quar-ter
Hot Springs Placers	8N	1W	33	SW
Humbug Placers	7N	1E	17	E2
Jack Ass	11N	1E	34	S2
JDR No. 1-3	13N	2W	33	S2
Jo Placer	8N	2E	4	E2
Joe Ben	13N	1W	36	S2
John D Placer	8N	2E	9	SE
K Placers	8N	5W	9	C
Kody Placers	12N	1W	17	C
Lawson	12N	1E	8	SE
Lillian and Upton Placers	10N	5W	36	C
Little Mint	12N	4W	1	N2
Lone Pine Group	10N	3W	24	C
Lot 2 Patent	12N	2E	31	NW
Lucky Monday	8N	2W	28	NE
Lucky Nugget	10N	2E	33	SW
Lynx Creek Placer	14N	1W	24	S2
Lynx Lake Withdrawal	13N	1W	5	E2
Maharaja of Rowdy Doe	12N	2W	27	W2
Marine Placers No. 1-8	8N	4W	5	NW
Mary Copper	12N	1E	8	E2
Maybe	10N	5W	24	SE
Mendenhall Placers	11N	2W	20	N2
Merrill Placers South	9N	5W	24	C
Merrill, RM	9N	4W	6	W2
Messick Placer	8N	1E	30	NE
Miget Placer	9N	2E	35	SW
Monarch Placer	8N	4W	7	C
Nelson Placers	12N	1W	24	S2
New Year Placer	7N	3W	2	NW
No Clouds 1-10	8N	3W	35	ALL
Nugget Patch	14N	1W	34	S2
Oak Creek Placer	9N	2W	8	N2
Ojos Bonitos	9N	2E	17	SW
Old Joe Group	12N	1E	22	S2
Old Kentucky	9N	1W	9	NE
Old Placers	14N	9W	15	S2
Palmer Placer	9N	5W	12	E2
Patented Placers 2239	9N	2E	27	SW
Pechan Wash Placer	7N	3W	2	C
Peoria Placers	12N	3W	19	N2
Placer 56B	12N	1W	5	SE
Placer 56C	12N	1W	5	SE
Placer 57B	12N	1E	6	NE
Placerita & French Gulch	11N	3W	18	N2
Placers	14N	10W	27	NW
Princess Patent	13N	1E	33	SW
Ranch Challenge Claims	9N	3W	26	W2
Red Bird Placer	12N	2E	31	SW
Red Twister	10N	5W	25	SW
Rich Hill Placers	10N	4W	32	SW
Ruby	13N	2W	32	SW

	Town-ship	Range	Sec-tion	Quar-ter
Scorpion Ridge	9N	5W	24	NW
Standard Extension	12N	1E	26	NW
Star Patent	12N	1E	16	C
T P Placers	13N	4W	28	ALL
Texaco Claim	9N	2E	29	NE
Turkey Bend	12N	1W	8	NE
Unaco	9N	5W	14	W2
Vale	9N	2E	17	C
Velvet Star	8N	5W	21	S2
War Eagle	9N	4W	6	W2
Weaver and Rich Hill	10N	4W	32	C
White Butte Placers	8N	2W	15	C
Willys 1-4 Placer	12.5N	1W	28	SE
Yankee Girl Placers	13N	1W	35	NE

YUMA COUNTY

BCHM Placers	7S	21W	31	--
Castle Dome Placers	4S	18W	35	N2
Gila City Placers	8S	21W	1	--
Golden Eagle Placer	1S	17W	34	C
Kofa Gold Placers	2S	16W	7	C
Laguna Dam Prospects	7S	22W	23	N2
Laguna Placers	7S	21W	28	N2
McPhaul Placers	7S	21W	33	S2
SW Muggins Mtns	8S	20W	11	SW
Vinegaroon Wash Placers	7S	19W	16	SE

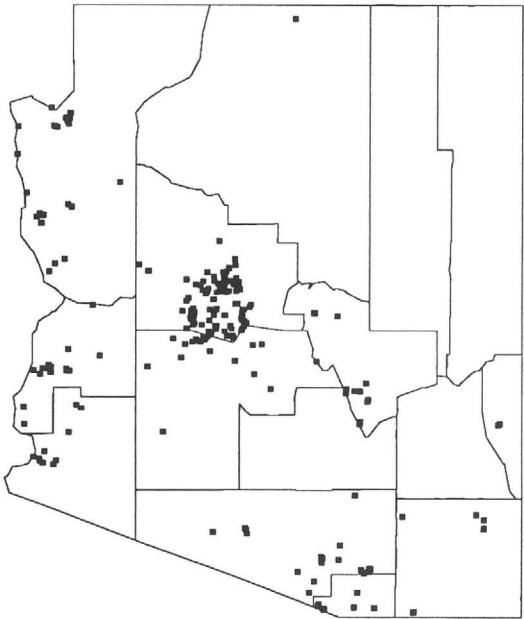


Figure 7. Scatter map showing Arizona placer gold occurrences.

	Town- ship	Range	Sec- tion	Quar- ter
King Tut	29N	17W	9	NE
Lone Jack Placer	29N	17W	15	E2
Mexican Diggings	14N	20W	23	--
North Star	10N	15W	4	SE
Oatman One Placer	19N	21W	12	SE
Old Placer	29N	19W	24	SE
Oro Rico Placers	29N	17W	34	NE
Placers	22N	21W	30	--
Queen Tut	30N	17W	4	NE
Rein Placer	29N	18W	30	NE
Robeson and Joy	30N	17W	4	C
Sandy Harris Placer	29N	22W	29	C
Temple Bar	31N	21W	25	--
United Oatman	19N	20W	33	SE
Unknown Placer	25N	22W	29	C
Wright Creek Placers	23N	12W	24	C

PIMA COUNTY

Agujito Placers	18S	10E	12	N2
Amargosa Wash Placers	18S	12E	14	C
Apex	19S	16E	30	--
Argonaut Placer Group	19S	16E	17	W2
Ash Creek Gold Placer	18S	10E	12	SE
Ash Creek Placers	18S	10E	12	S2
Canada Del Oro Placers	11S	14E	21	NW
Colchis Placer Group	19S	16E	19	NE
Devils Wash Placer	15S	2E	2	ALL
Edna J Placer	19S	8E	32	C
Greaterville Placers	19S	16E	16	SE
Horseshoe Basin	15S	2E	14	SW
Horseshoe Gold Placers	15S	2E	24	W2
Laguna Placer	19S	16E	18	SE
Las Guijas Gold Placers	20S	10E	25	C
Linda Lee Claims	15S	2E	12	SW
Mission Mine	16S	13E	31	NW
Old Pennsylvania Placer	19S	15E	25	SE
San Juan Wash Placers	18S	10E	25	C
San Luis Wash Gold	21S	9E	34	C
Sawmill Canyon Placers	19S	15E	20	C
Tascuela Wash Placers	18S	10E	13	NW

SANTA CRUZ COUNTY

Alamo Mine	23S	10E	10	SW
California Gulch	23S	11E	20	E2
Condition Placer	23S	10E	15	S2
Nogales Placers	23S	14E	16	SW
Oro Escondido	23S	11E	19	SE
Patagonia Placers	23S	16E	16	N2
Tyndall Placers	21S	14E	35	SW

	Town- ship	Range	Sec- tion	Quar- ter
YAVAPAI COUNTY				
Alto	11N	5W	21	SE
American Selco Permit	12N	1E	16	NW
Apostles Doctrine	10N	5W	29	ALL
Bager Placer	10N	2E	25	NE
Big Foot, Little Joker	12N	1W	29	NE
Bimetals	11N	1E	35	SW
Black Canyon Placers	9.5N	2E	32	SE
Box Placer	10N	5W	25	C
Buckhorn Property	8N	2W	28	NE
Bumble Bee	9.5N	2E	20	E2
Button Minnehaha Placers	10N	2W	22	N2
Buzzard and Raven	12N	2W	4	SW
Carpenter, Swilling	8N	1E	7	C
Carter Ranch Placers	11N	3W	15	SE
Castle Creek Placers	7N	1W	14	W2
Copper Creek Placers	13N	3W	32	SW
Coyote Wash Placers	15N	1E	21	E2
Davenport Placer	12N	3W	27	N2
De Stories Permit	10N	3W	17	SW
De Vault Placers	10N	4W	18	S2
Del Rio Placers	17N	2W	25	W2
Delta	12.5N	2W	26	S2
Devils Nest	10N	4W	31	SE
Don Alexander Claims	12.5N	2W	26	SE
Donna 1 and 2	9N	2E	17	NE
Dos Caballeros	9N	4W	8	S2
Double V Placers	13N	1W	33	N2
Dredge Area	13N	1W	5	SE
Easy To Get	12N	2W	12	SW
Ed Schrecks Placers	13N	1W	16	S2
Enkeboll Placer	13N	1E	22	SW
Five Corners Claim	12N	1W	5	E2
Fourth of July Claim	8N	2E	29	N2
Gladhart Placers	8N	1E	7	SW
Gold Palace Placers	12N	1W	19	W2
Golden Bar	7N	1W	21	SW
Golden Goose	10N	4W	29	W2
Golden Gravel	9N	4W	5	NW
Golden Web #1	7N	2W	18	NW
Good Hope Patent	12.5N	1W	21	NW
Granite Creek Placers	13N	2W	20	N2
H.E.S. No. 81	11.5N	1E	22	C
H.E.S. No. 6	12N	1E	1	SW
Happy Days	12N	1W	27	SE
Happy Joy and Sidewinder	9.5N	2E	21	NW
Harlan	12.5N	2W	36	NW
Hassayampa Gold Basin	12N	3W	11	S2
Hassayampa Placers	12N	3W	33	E2
Home Placer Patent	13N	1W	5	NE
Homestead Mine	12.5N	1W	24	N2
Horseshoe Bar	8N	2E	16	NE

ORIGIN OF PLACER GOLD

The gold in placer deposits in Arizona is derived from veins and other hardrock deposits distributed through the bedrock of select mountain ranges. In a process occurring at various times throughout Arizona's geologic past, but principally during the Precambrian, Laramide, and mid-Tertiary time, mineralized fluids ascended along cracks and fissures in the existing rocks, precipitating gold and other mineral constituents into veins or other bodies as lode deposits. It is predominantly these lode deposits that are the source of placer gold in Arizona.

Gold must be freed from its host rock before it can be concentrated as placer gold. The disintegration of the rocks in which the gold veins are confined is a slow process, in human terms, accomplished by uplift of the area, erosion, and weathering. Wind, rain, frost, chemical action, earth movement, and changes in temperature are the agents in this process. Gold, resistant to weathering, is liberated as the surrounding rock is reduced to gravel, sand, silt, and clay.

Running water is the dominant agent in transporting and concentrating placer gold once the native gold has been freed from the bedrock source. Placer deposit formation most often takes place during times of flood.

Occasionally placer deposits are formed at the site of the original lode occurrence as *eluvial deposits*, but more often the gold particles are transported, concentrated, and deposited by the moving water of streams and rivers into *alluvial deposits*. Underground, or buried placer deposits, recovered by *drift mining*, occur as the result of sediments or volcanic flows covering and preserving placer deposits.

GOLD FACTS AND FIGURES

Gold is a native element with the symbol Au.

It has a hardness of 2.5 to 3 on the Mohs Scale, about the same as a copper penny.

The luster is metallic, the color and streak are golden yellow.

Native gold is 14 to 19 times heavier than an equal volume of water.

It is estimated that gold has been mined since 18,000 BC.

Gold is the most malleable metal, it can be hammered into foil 3/1,000,000 of an inch thick.

Gold is the most ductile metal, one ounce can be drawn into a wire 35 miles long.

White gold is produced by adding nickel, pink gold by adding copper.

"Fineness" defines gold content in parts per thousand.

"Karat" indicates the portion of gold in an alloy based on a total of 24 parts.

Placer gold in Arizona commonly runs 810 - 890 fine. The remainder is generally silver.

There is rarely a fixed relation between the richness of a placer deposit and the richness of the original lode deposit. Some highly productive placers have no known "mother-lode", while some rich lode districts have formed no significant placer deposits. However, even though there is not ordinarily a high relationship between specific lode deposits and specific placer deposits, most areas have a high correlation between lode gold production and placer gold production.

This is not the case in Arizona where the ratio of total placer gold production to total lode gold production is 1:36. California's ratio, for com-

parison, is 1:2.6. The reasons for Arizona's low ratio are not completely understood. The lack of water for large-scale hydraulic placer mining has certainly played a role. Another factor could be the relatively young age of some of the Arizona lode deposits, with the subsequent lack of time for erosion to produce placers. Probably the biggest factor is that much of Arizona's past gold production has been as a by-product of copper mining. By far, the most exciting possibility, is that Arizona has substantial, but as yet undiscovered, placer deposits.



Figure 5. Hydraulic placer operation on Lynx Creek, circa 1890. Photo courtesy of Sharlot Hall Museum.

Table 3. PLACER GOLD OCCURRENCES

Placer deposits occasionally run for miles along a stream, therefore, the legal descriptions listed below are often centralized points. They were compiled from the Arizona Mineral Industry Location System (AzMILS).

	Town-ship	Range	Sec-tion	Quar-ter
COCHISE COUNTY				
Ash Canyon Placers	24S	21E	6	NW
Buckeye Placers	13S	27E	26	NE
Dos Cabezas Placers	14S	28E	10	C
Gold Star	15S	28E	10	--
Highlife Claims	13S	19E	35	SW
Yaqui Placer	24S	20E	1	E2
COCONINO COUNTY				
Lees Ferry Gold	40N	8E	18	NW
GILA COUNTY				
Barbarossa Placers	3S	15E	31	SW
Diamond Butte Placer	9N	12E	11	W2
Diamond Claims 1-4	1N	13E	3	--
Dripping Spring Placers	3S	15E	30	NE
Elmer Claims	1S	15E	24	NE
Gold Bug Placer MS 3045	1N	15E	17	SE
Haunted Canyon Placers	1N	13E	23	C
Hoopes Placer	2N	15E	31	C
Lost Gulch Placers	1N	14E	15	NE
Ousley Claim	4N	10E	9	C
Oxbow Property	10N	10E	32	C
Payson Placers	9N	10E	5	E2
Six Shooter Claims	1S	15E	24	E2
Thompson Property	10N	10E	31	C
GREENLEE COUNTY				
Clifton Morenci Placers	3S	30E	31	SE
LA PAZ COUNTY				
American Coarse Gold	4N	20W	27	--
Colorado River Placers	3S	23W	36	S2
Farrar Gulch Placers	4N	21W	36	NW
Golden Crest	4N	20W	35	ALL
Granite Wash	5N	14W	20	C
La Cholla Placers	3N	20W	11	C
La Paz Placers	4N	21W	26	NW
Livingston Placer	3N	18W	11	--
Melfern Placer	3N	20W	14	--
Middle Camp Gold Placers	4N	20W	21	C
Murry Placer	3N	18W	10	C
MARICOPA				
Oro Fino Placers	4N	20W	26	C
Plumosa Placers	3N	18W	4	NW
Saunders Placers	3N	18W	4	SE
Spot Placers	3N	18W	3	NW
Trigo Placers	2S	23W	1	SW
Wooden Dollar	4N	20W	33	--
Yellow Dollar	3N	21W	22	NW
MOHAVE COUNTY				
Apache Oro	30N	17W	17	NW
Arizona Gold	20N	17W	6	NE
Bonanza Mine	20N	20W	32	SE
Boulders Creek Placers	20N	17W	10	--
Calizona Placer Channel	14N	19W	20	--
Chemehuevis Placers	15N	18W	9	--
Climax	30N	17W	33	S2
Gold Basin Placers	29N	18W	29	SE
Gold Roads Placer	19N	20W	2	SW
Golden Nugget	30N	17W	33	NE
Golden Queen No. 6	29N	18W	19	NW
Hualapai Placer Claims	20N	14W	6	--
Hualapai Valley Placers	30N	17W	29	--

Prospecting clubs are an excellent way to learn about gold panning and places to pan. Many of the organizations have their own claims or properties for use by members. This eliminates the worry of trespassing and ensures you will be panning in a promising location. Joining a club also provides educational and social benefits. A list of prospecting organizations is available from the Department or the Arizona Mineral Museum and many of the gold panning equipment stores.

The third, and most difficult method of finding a panning area, is to research the ownership of surface and mineral rights of a particular location to see if it is available for mineral entry. The determination of whether lands are open to mining, for either recreational or economic purposes, is a complex process and will not be addressed in this publication.

For a comprehensive review of State and Federal mining laws, a publication entitled *Laws and Regulations Governing Mineral Rights in Arizona* is available from the Department of Mines and Mineral Resources. The Department also publishes *Manual for Determination of*

Status and Ownership, Arizona Mineral and Water Rights to aid in the determination of ownership status. The following is a brief summary of the procedure.

Through the use of a USGS topographic or Forest Service map to determine a legal description (township, range, and section), the mineral status of a particular site may be obtained from the U. S. Dept. of Interior, Bureau of Land Management's State Office (Table 3). Surface/mineral management maps, available from the BLM, can be a useful tool for general determination of land status, but do not list mining claims.

If the determination shows Federal land open to mineral entry, then the Arizona Mining Claim Index should be checked to see if there are existing claims. If there are no existing claims, a claim may be staked or gold may be panned without filing a claim. If there is a valid, existing claim, please respect it and continue your search for open locations. You may consider contacting the claim owner for permission to pan, or the possibility of leasing or buying the claim.



Illustration courtesy of the California Historical Society.

WHERE TO GO

Two steps are involved in locating a place to pan for gold. First, you must find an area that is favorable for placer gold to occur, and second, you must determine if you are allowed to pan there. The first part is the easiest.

Although placer gold has been found in almost all areas of the State, the most productive districts are in the central and southeastern portions. All of the major streams and their tributaries that flow across gold-bearing areas are likely to carry gold. Where placer gold has been found in the past is the best place to seek it today. Favorite spots over the years have been the Hassayampa River, Patagonia, Cave Creek, the Bradshaw Mountains, Lynx Creek, Big Bug Gulch, Humbug, and Lake Pleasant. A map of the Arizona placer districts (Figure 6) shows where historic production has been concentrated. Table 2 is a listing of USGS topographic maps corresponding to each of the placer districts listed on the map.

The individual mines that make up the placer districts are listed in Table 3. These 247 occurrences, compiled from the Arizona Mineral Industry Location System database of the Department of Mines and Mineral Resources, are also plotted on a scatter map to show distribution (Figure 7). The variety of claim names add interest to the listing. Names such as Easy To Get, One More Time, Martha and Son, reveal the whimsical or sentimental side of miners. A legal description (township, range, section, and quarter section) is provided for each mine.

These maps and tables give a fairly accurate picture of the known placer gold distribution in the State. Determining which of these areas are open for gold panning is the remaining problem. There are two simple solutions and one complex one.

Specific areas of the State have been set aside for recreational use that includes gold panning. At Lynx Lake near Prescott and Lake Pleasant near Phoenix, unlimited panning is allowed, but no claims may be staked. Figure 8 and Figure 9 provide maps and information for these areas. These historically productive sites are ideal for beginning as well as experienced panners.



Figure 6. Major Arizona Placer Gold Districts

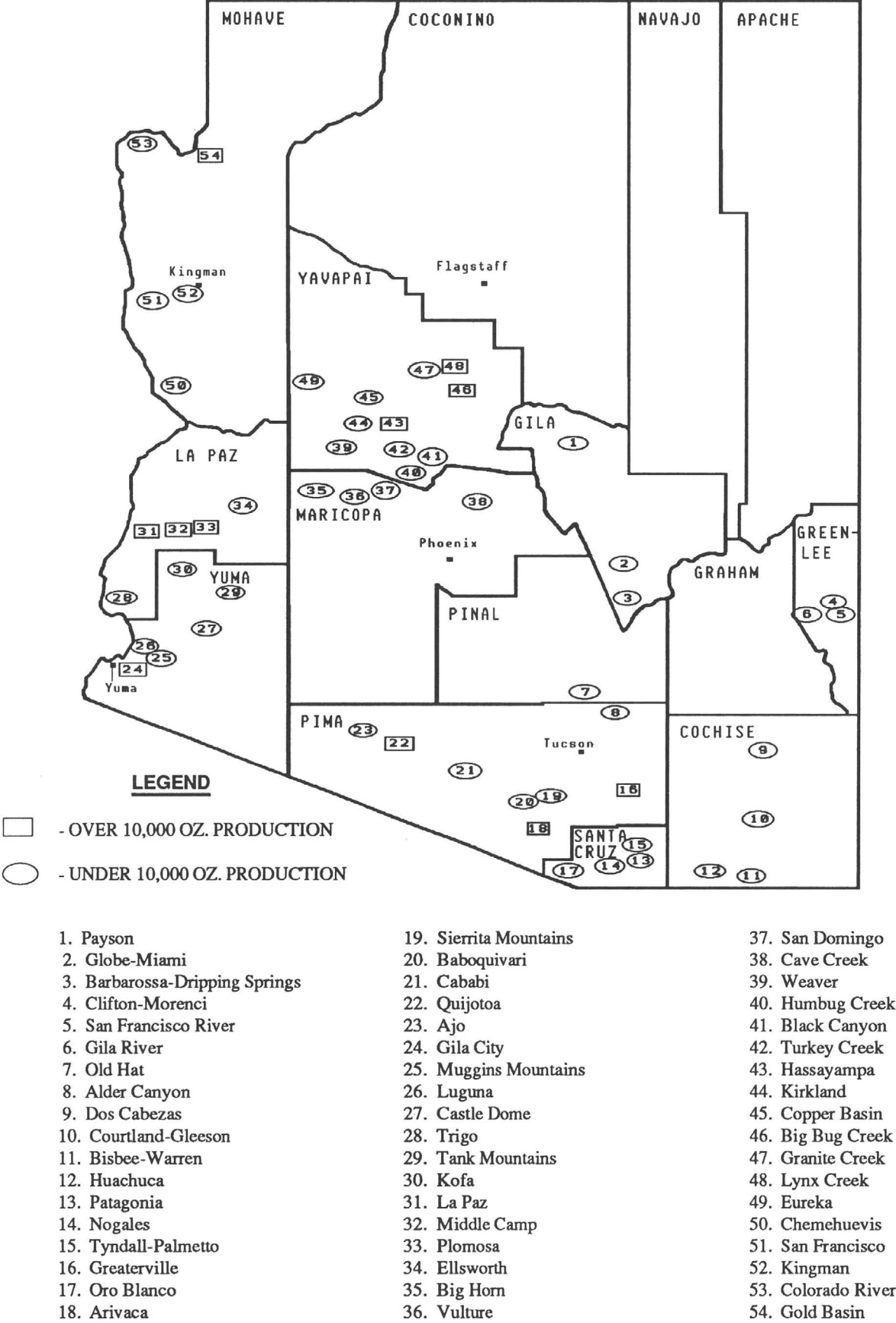


Table 2. USGS Topographic Quadrangle Maps for Arizona Placer Districts

DISTRICT	MAP	DISTRICT	MAP
Ajo	Ajo - 15 min.	Payson	Payson - 7.5 min.
Alder Canyon	Buehman Canyon - 7.5 min.	Plomosa	Quartzsite - 15 min.
Arivaca	Arivaca - 7.5 min.	Quijotoa	Quijotoa - 15 min.
Baboquivari	Chiuli Shaik - 7.5 min.	Rich Hill	Yarnell - 7.5 min.
Barbarossa-Dripping Springs	El Capitan - 7.5 min.	San Domingo	Red Picacho - 7.5 min.
Big Bug Creek	Groom Creek - 7.5 min.	San Francisco	Oatman - 7.5 min.
Big Horn	Big Horn Mts - 15 min.	San Francisco River	Guthrie - 7.5 min.
Bisbee-Warren	Bisbee - 7.5 min.	Sierrita Mountains	Batamote Hills - 7.5 min.
Black Canyon	Black Canyon City - 7.5 min.	Tank Mountains	Engesser Pass - 7.5 min.
Cababi	Sells East - 7.5 min.	Trigo	Picacho NW - 7.5 min.
Castle Dome	Castle Dome Mts - 15 min.	Turkey Creek	Battle Flat - 15 min.
Cave Creek	Cave Creek - 7.5 min.	Tyndall-Palmetto	Patagonia - 7.5 min.
Chemehuevis	Topock - 7.5 min.	Vulture	Vulture Mountains - 15 min.
Clifton-Morenci	Clifton - 15 min.		
Colorado River	The Temple - 7.5 min.		
Copper Basin	Wilhoit - 7.5 min.		
Courtland-Gleeson	Outlaw Mtn. - 7.5 min.		
Dos Cabezas	Dos Cabezas - 7.5 min.		
Ellsworth	Hope - 15 min.		
Eureka	Bagdad - 7.5 min.		
Gila City	Laguna - 7.5 min.		
Gila River	Gila Box - 7.5 min.		
Globe-Miami	Pinal Peak - 7.5 min.		
Gold Basin	Garnet Mtn - 15 min.		
Granite Creek	Groom Creek - 7.5 min.		
Greaterville	Empire Ranch - 7.5 min.		
Hassayampa	Weaver Creek - 7.5 min.		
Humbug Creek	Minnehaha - 7.5 min.		
Kingman	Kingman - 7.5 min.		
Kirkland	Weaver Peak - 7.5 min.		
Kofa	Kofa Butte - 15 min.		
La Paz	La Paz Mtn - 7.5 min.		
Laguna	Laguna Dam - 7.5 min.		
Lynx Creek	Groom Creek - 7.5 min.		
Middle Camp	Middle Camp Mtn - 7.5 min.		
Muggins Mountains	Welton - 7.5 min.		
Nogales	Rio Rico - 7.5 min.		
Old Hat	Oracle - 15 min.		
Oro Blanco	Ruby - 7.5 min.		
Patagonia	Harshaw - 7.5 min.		