

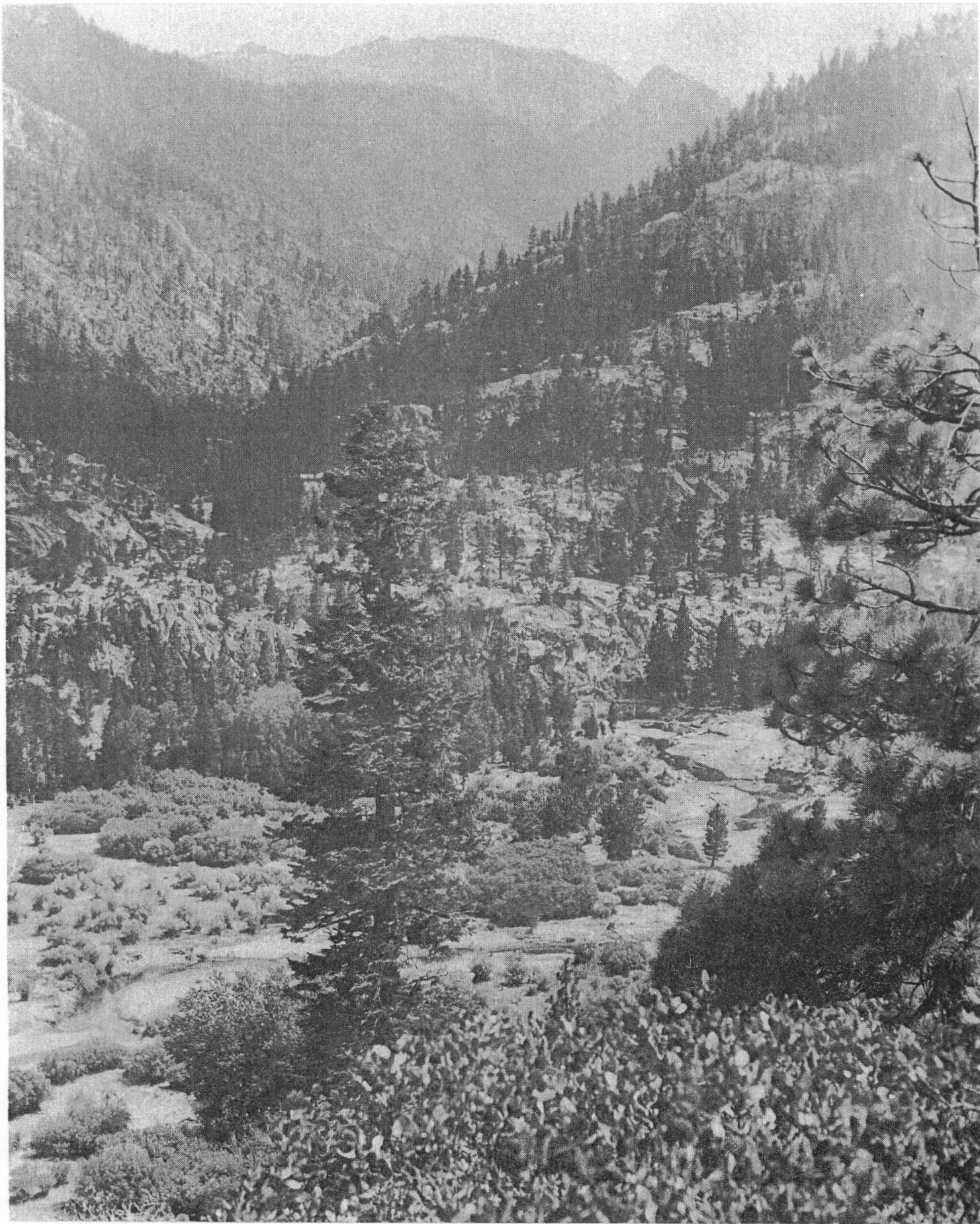
State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

EAST FORK CARSON RIVER
WILD TROUT MANAGEMENT PLAN^{1/}

Inland Fisheries Branch

July 1979

^{1/}This work was performed as part of Dingell-Johnson Project California F-10-R, "Salmonid Stream Study", supported by Federal Aid to Fish Restoration funds.



Fall Meadows - East Fork Carson River

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PREFACE

In 1966, the Department of Fish and Game in the California Fish and Wildlife Plan recommended expansion of trout management activities to "protect and enhance wild trout fisheries." In response to this recommendation and to concerns expressed by the public, the California Wild Trout Program was established by the California Fish and Game Commission in 1971. The primary purpose of the program is to preserve attractive trout stream fisheries which are naturally sustained by wild strains of trout as opposed to programs which feature the stocking of catchable-sized trout on a put-and-take basis. Emphasis is placed on protecting the aquatic environment to perpetuate natural production and on preserving the natural character of the streamside environment to provide a quality angling experience.

Since 1971, the Fish and Game Commission has designated eight backcountry^{2/} and nine roadside streams as wild trout streams. Each wild trout stream is to have its own management plan and regulations which will emphasize individuality and diversity.

Specific management objectives for each stream will use the general objectives of the wild trout program as guidelines. The guidelines are:

1. To maintain wild trout populations at levels necessary to provide satisfactory recreational angling opportunities.
2. To maintain and enhance where possible the habitat required for optimum wild trout production.
3. To preserve the natural character of the streamside environment.

^{2/} Remote with access largely provided by trails.

Management of backcountry streams such as the East Fork Carson River will also emphasize maintenance of the remote secluded quality of the angling experience, which generally involved minimizing angler encounter with man's activities.

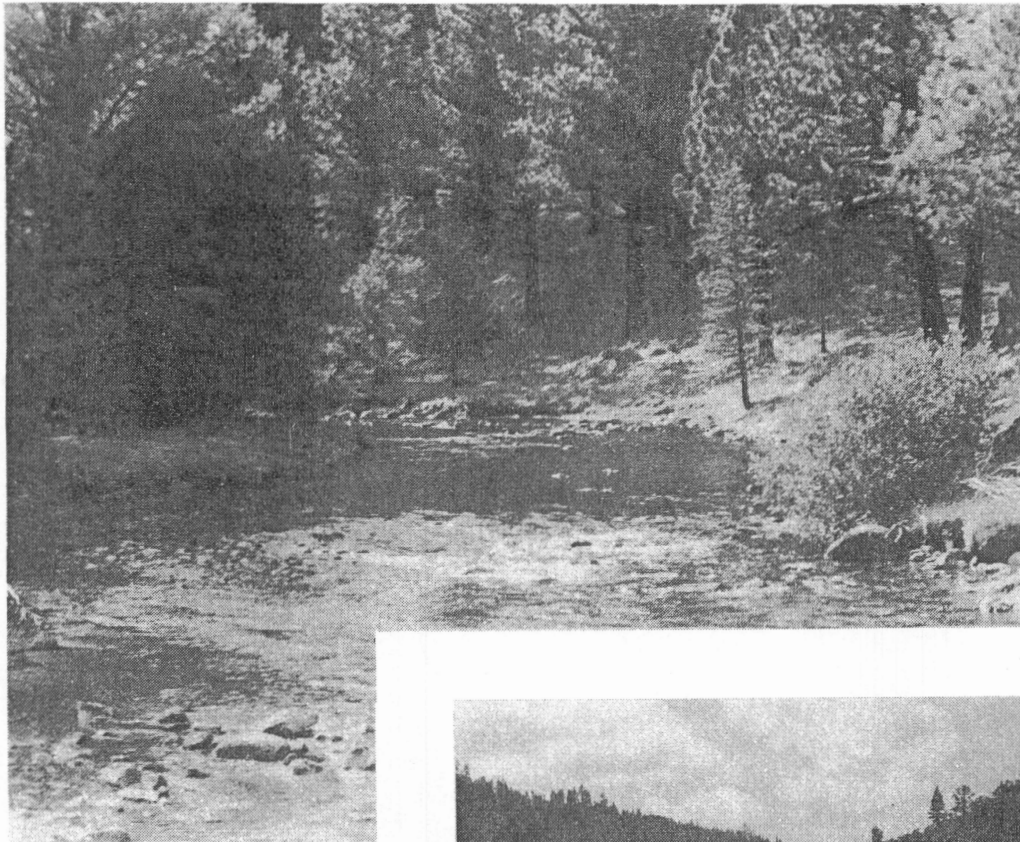
This plan is an in-house document written to identify the Department of Fish and Game's activities in the East Fork Carson River drainage including the management direction to be taken in coordinating with agencies responsible for environmental protection. All land use planning is the ultimate responsibility of the U. S. Forest Service. As per the Memorandum of Understanding between the Department and the Forest Service, the Department will identify management direction which is intended to preserve and protect wildlife resources in natural forests and the Forest Service will recognize the Department's responsibilities and concerns along with those of the other users of the forest in their multiple use planning.

RESOURCE STATUS

General Setting

The East Fork Carson River rises on the east slope of the Sierra Nevada between Ebbetts Pass and Sonora Pass, about 40 miles south of Lake Tahoe (Figure 1). Originating near the Sierra crest, nearly 10,000 ft above sea level, the stream passes from steep canyon terrain into a series of meandering meadows and sparsely timbered canyons before joining the West Fork on its descent to the desert-like Carson Sink in Nevada. The designated wild trout area is 28 miles long extending from the river's confluence with Wolf Creek to its headwaters near Sonora Peak (Figure 2).

The wild trout area is situated in a beautiful, largely pristine region surrounded by the majestic granite peaks which form the crest of the Sierra

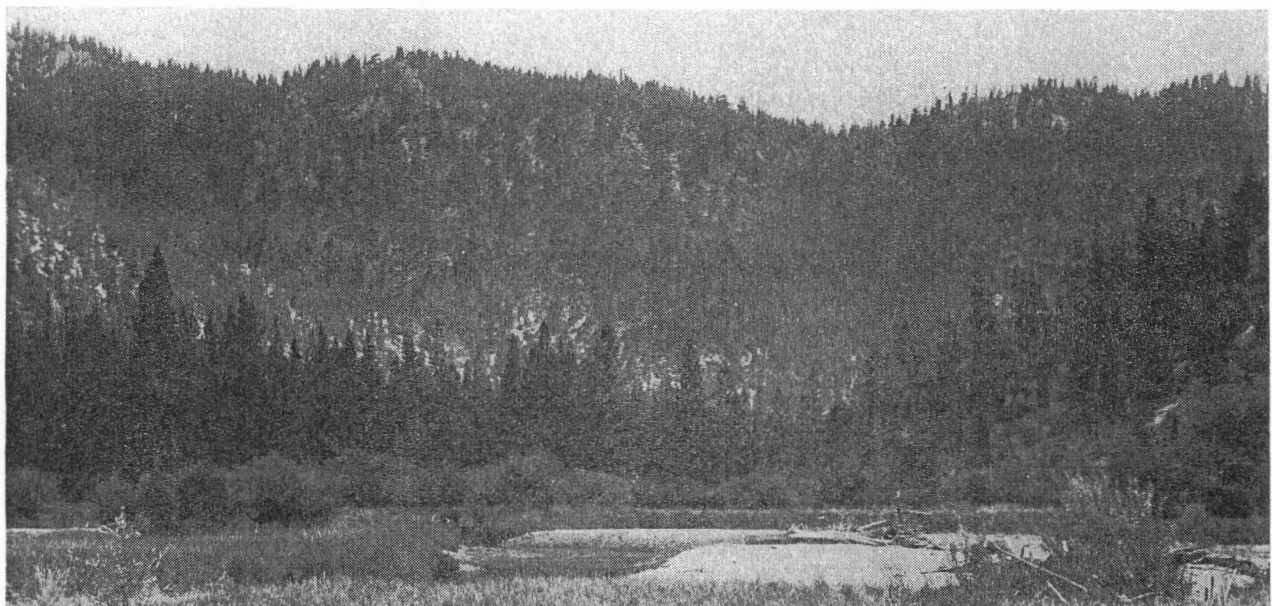


Near Bryant Creek.

THE EAST FORK CARSON RIVER



Just above Wolf Creek.



Dumont Meadows

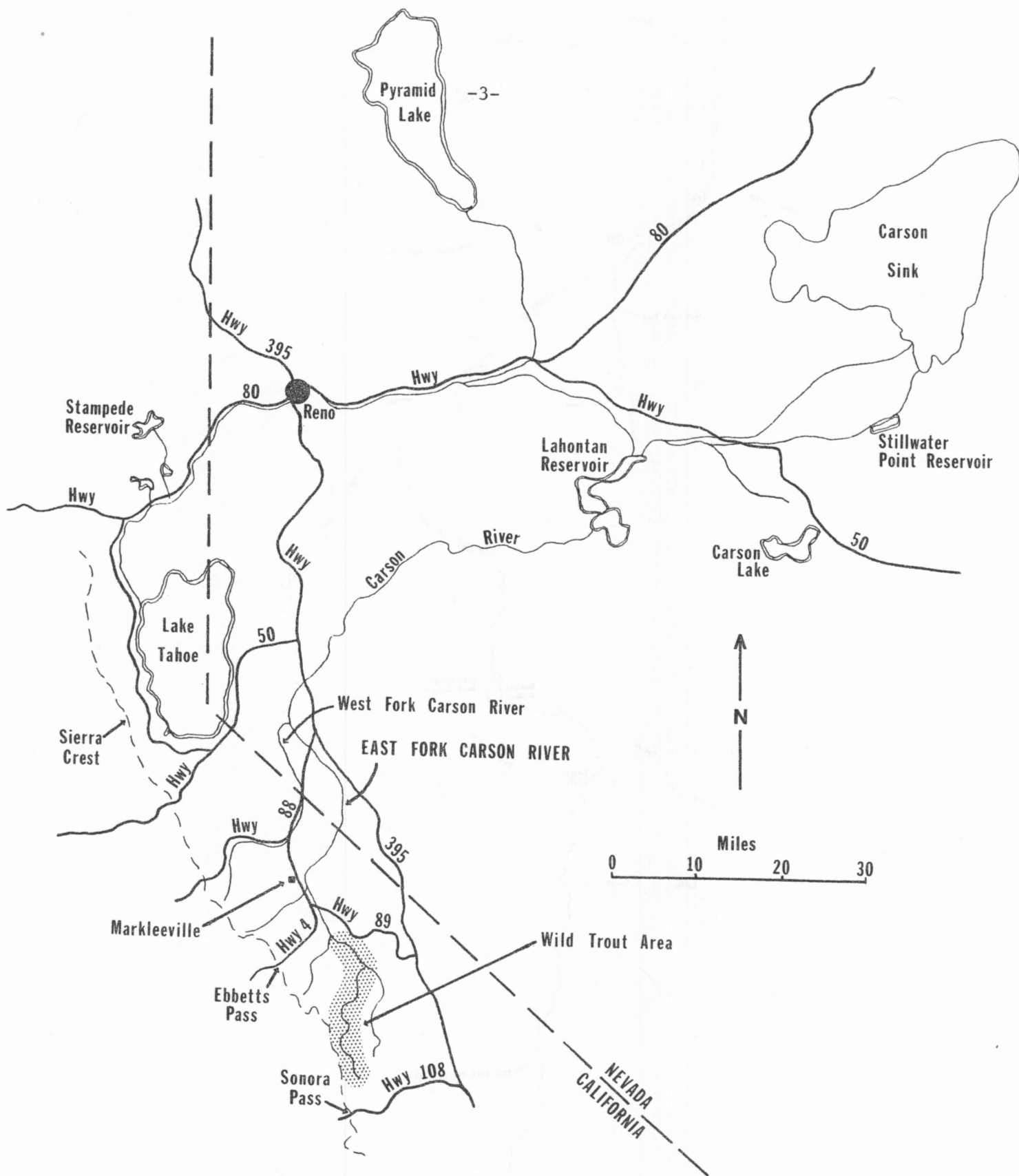


FIGURE 1 GENERAL LOCATION OF EAST FORK CARSON RIVER DRAINAGE.

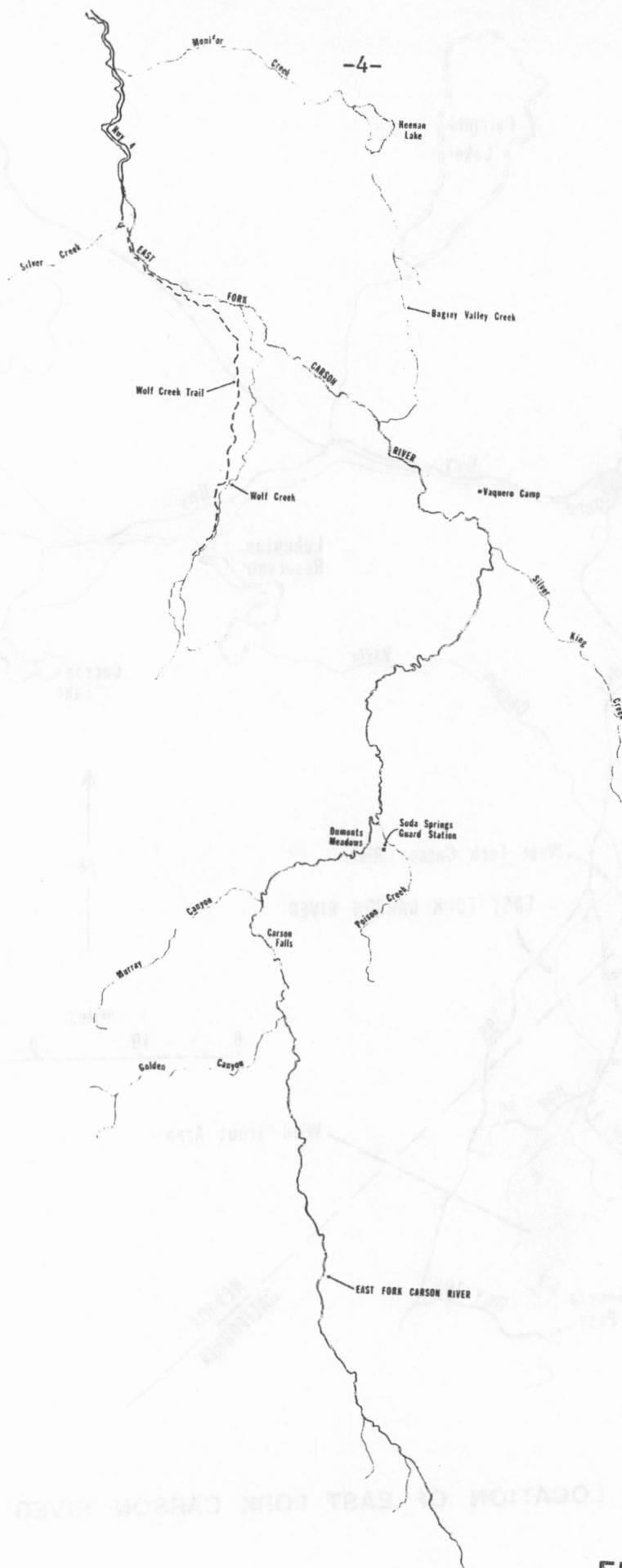


FIGURE 2
EAST FORK CARSON
RIVER DRAINAGE



Nevada. Wide meadows interfaced with sparsely timbered slopes gently extending to the base of the surrounding peaks typify most of the wild trout area below Silver King Creek. Above Silver King Creek steep canyon walls encroach upon the stream, meadows narrow, and timber abundance increases to the extent of choking out the meadows at their narrowest points.

An interesting and important feature of the East Fork is Carson Falls - an 80-ft drop which marks the transition from the U-shaped meadowed canyons below, and the narrow V-shaped gorge above, as well as a barrier to upstream fish migration.

Flow in the East Fork is typically highest during the snow melt period: mid-May through mid-June (Figure 3). Between 50 and 60% of the total annual flow occurs during this period. Low flows usually occur during September, October, and November.

Most of the wild trout area is of granitic and pyroclastic origin. An abundance of decomposed granite and thick alluvial deposits make up most of the valley floor.

Significant amounts of exposed bedrock consisting of either granite, basalt, or andesite, also occur in the drainage. Runoff traversing these formations in the steep upper reaches of the drainage generate rapid, highly erosive flows. During the spring thaw and sometimes during summer cloud bursts, torrential flows are generated which easily transport erosion prone soils from the headwater areas into the river. Large deposits of decomposed granite and volcanic mud have accumulated in many of the river flats, particularly those upstream from Dumont Meadow.

Land Ownership

The entire wild trout area lies within the Alpine Planning Unit of the Toiyabe National Forest (Figure 4). Private inholdings are concentrated in the valley

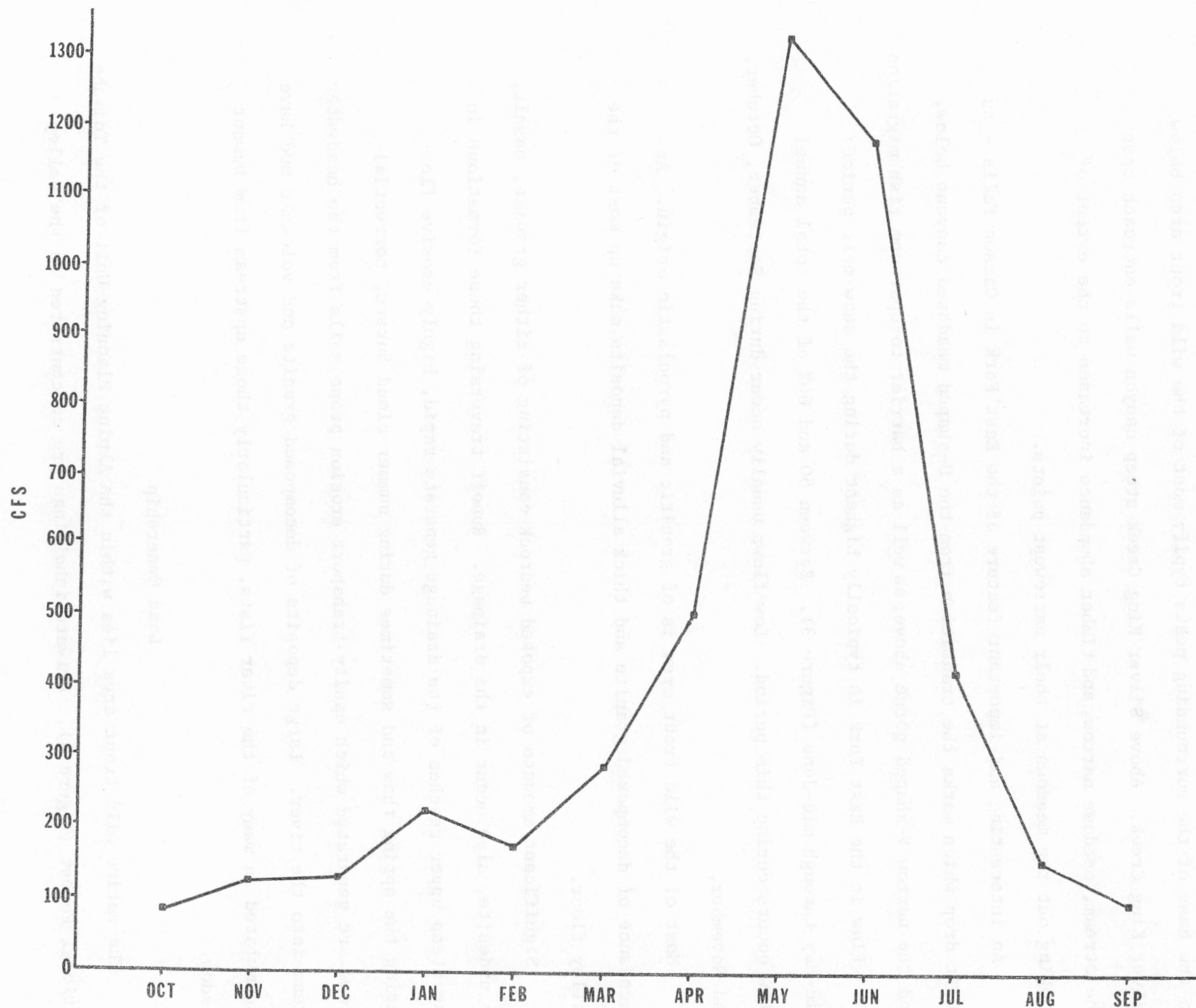
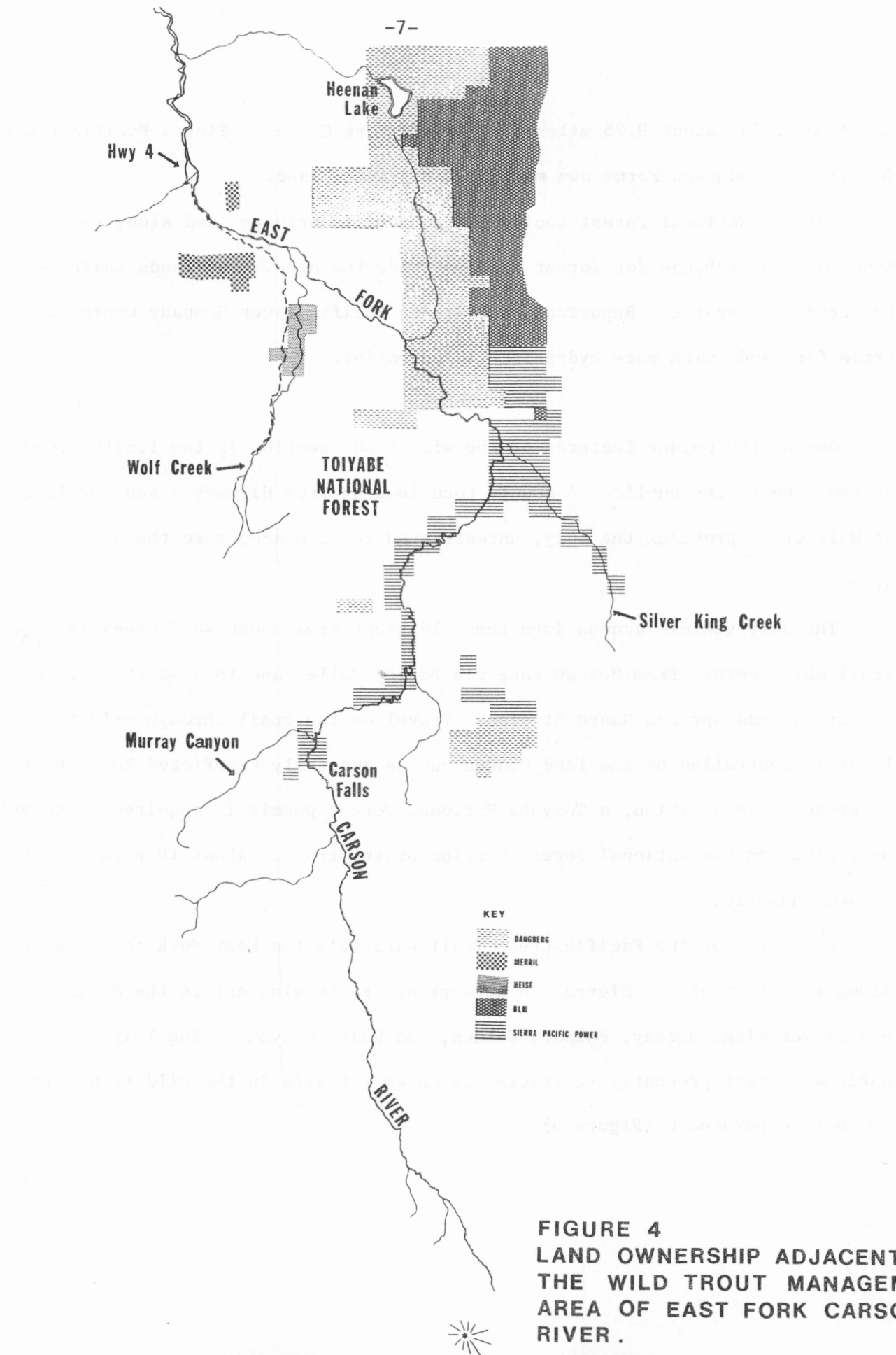


FIGURE 3 MEAN MONTHLY FLOW IN THE EAST FORK CARSON RIVER MEASURED NEAR MARKLEVILLE. [OCT. 1965 - SEPT. 1975]



floor bordering about 9.25 miles of the East Fork Carson. Sierra Pacific Power Company and Anderson Farms own most of the private land.

Toiyabe National Forest would like to acquire private land along the East Fork in exchange for forest lands outside the area. But lands suitable for trade are scarce. Reportedly the Sierra Pacific Power Company wants to trade for lands with more hydroelectric potential.

Access

One of the unique features of the wild trout section is the limited road system open to the public. A county road leading from Highway 4 and terminating at Wolf Creek provides the only, unrestricted vehicle access to the wild trout area.

The only vehicle access into the wild trout area above Wolf Creek is a jeep trail which enters from Heenan Lake via Bagley Valley and follows the stream as far as Soda Springs Guard Station. Travel on the trail through private lands is controlled by the land owners and is generally restricted to foot or horseback. In addition, a Toiyabe National Forest permit is required to travel by vehicle on the National Forest section of the trail. About 10 permits are issued annually.

A portion of the Pacific Crest Trail parallels the East Fork to the west along the crest of the Sierra. A network of trails also enters the drainage via Silver King, Murray, Poison, Golden, and White canyons. The Toiyabe National Forest presently restricts use on most trails in the wild trout area to foot or horseback (Figure 5).

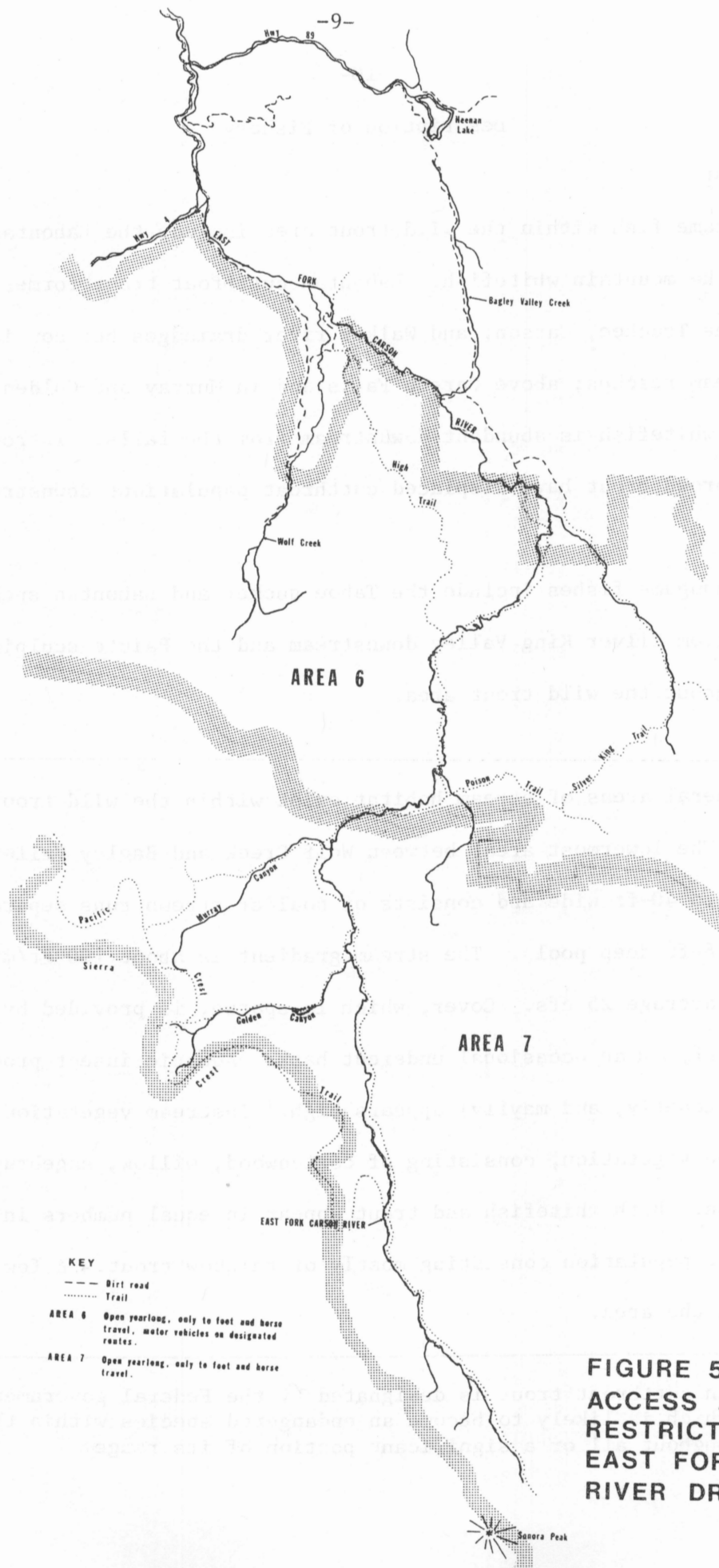


FIGURE 5
ACCESS AND TRAIL USE
RESTRICTIONS IN THE
EAST FORK CARSON
RIVER DRAINAGE .

Description of Fishery

Fishes Present

Native game fish within the wild trout area include the Lahontan cutthroat trout^{3/} and the mountain whitefish. Lahontan cutthroat trout formerly occurred throughout the Truckee, Carson, and Walker river drainages but now is only found in a few stream reaches; above Carson Falls and in Murray and Golden canyons. The mountain whitefish is abundant downstream from the falls. Introduced rainbow and brown trout have displaced cutthroat populations downstream from the falls.

Native nongame fishes include the Tahoe sucker and Lahontan speckled dace which occur from Silver King Valley downstream and the Paiute sculpin which occurs throughout the wild trout area.

Fish Habitat

Four general areas of stream habitat exist within the wild trout section (Figure 6). The lowermost area, between Wolf Creek and Bagley Valley (4 miles), averages 25- to 40-ft wide and consists of boulder strewn runs separated by short, 3- to 6-ft deep pools. The stream gradient is about 100 ft/mile and late summer flows average 25 cfs. Cover, which is sparse, is provided by shelving rocks, turbulent water, and an occasional undercut bank. Aquatic insect production (caddisfly, stonefly, and mayfly) appears high. Instream vegetation is lacking and streamside vegetation, consisting of cottonwood, willow, sagebrush, and jeffrey pine is sparse. Both whitefish and trout appear in equal numbers in the area with the trout population consisting mostly of rainbow trout. A few sucker and sculpin also occur in the area.

^{3/} The Lahontan cutthroat trout is designated by the Federal government as "threatened"; a species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

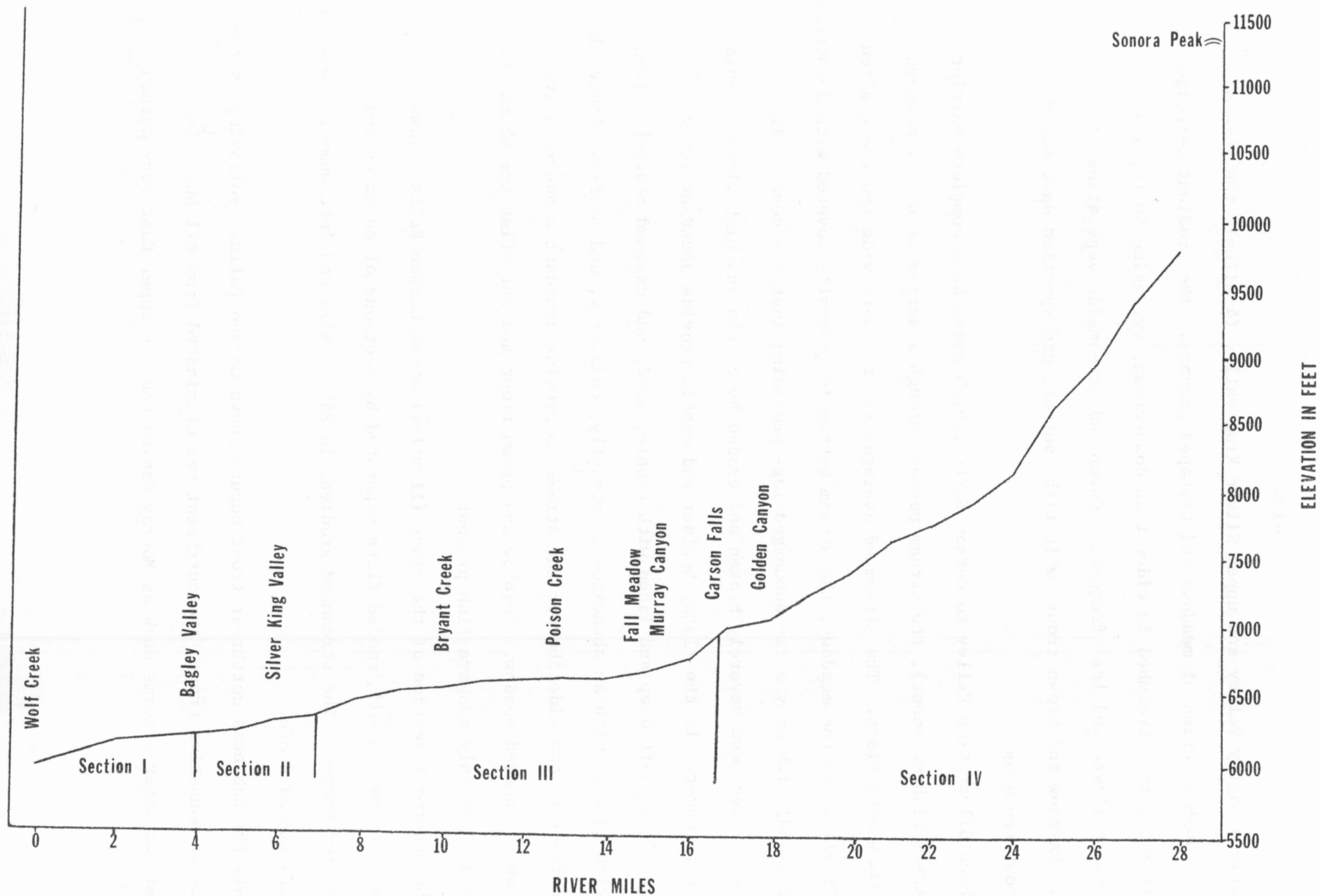


FIGURE 6 LONGITUDINAL STREAM PROFILE - EAST FORK CARSON RIVER

Between Bagley Valley and upper Silver King Valley (4 miles), the stream passes through a series of meadows and U-shaped canyons. The gradient decreases to 50 ft/mile, the streambed is wider than downstream, averaging 40 ft, and pools are shallower and less frequent. Cover and streamside vegetation is sparse. Rainbow and brown trout, whitefish, sucker, and speckled dace occur throughout the area.

Above Silver King Valley to Carson Falls (which poses as a complete barrier to upstream fish movement), the stream passes through a series of narrow meadows and small, wooded flats. The streambed averages 15- to 20-ft wide and the gradient is 90 ft/mile. In the meadows, the stream bottom is generally covered with decomposed granite (sand) with only a few submerged logs providing instream cover. The banks which have been severely broken and eroded by cattle and high flows, provide very little cover. In the flats, boulder and cobble provide abundant cover, pools are 2- to 5-ft deep and lined with cobble, sand, and exposed bedrock. Food production is good with an abundance of stonefly, caddisfly, and mayfly. Lodgepole pine, white fir, and alder border the stream to provide abundant shade relative to the open, exposed meadow. Rainbow and brown trout and whitefish are abundant. Sculpin are the only nongame fish present.

The uppermost section of the river (11 miles) above Carson Falls, flows through a series of small, wooded flats separated by sections of cascades and steep walled gorges. The streambed gradient is 240 ft/mile and late summer flows generally exceed 8 cfs.

Only the Lahontan cutthroat trout occurs above Carson Falls. Following introductions of nonnative trout, the cutthroat was eliminated from all but a few isolated headwater streams such as Murray Canyon and the upper East Fork Carson River.

The Department of Renewable Resources, University of Nevada, has been collecting water quality data at Soda Springs since 1973. Their evaluations indicate that suspended sediment production is very high during the spring, (e.g., 18 tons of suspended sediment per day, per square stream mile was computed for June 5, 1974) and that stream nutrients are very low. The nitrate concentration ($0.01 + 0.03$, $\bar{x} = 0.014$ mg/l) is well below normal levels for this elevation (0.2 to 2.0 mg/l). Nutrient assimilation removes nitrate to the extent that the average nitrate level in the creek is less than the nitrate levels found in snow crystals (0.03 mg/l) falling into the basin. Orthophosphate, the other important nutrient element, averages 0.04 mg/l which is barely adequate for this elevation (Dr. Scau, pers. commun.).

Angler Use and Success

Angler use for 1974 and 1975 (Table 1) are estimates based upon Forest Service recreation use counts (Table 4, page 23).

MANAGEMENT PROGRAM

Management Goals

The goals of the East Fork Carson River Wild Trout Management Plan are:

1. To protect the aquatic environment of the East Fork Carson River.
2. To perpetuate a self-sustained, balanced^{4/} population of rainbow, brown, and Lahontan cutthroat trout.
3. To provide a quality backcountry angling experience characterized by an unspoiled, primitive environment.

The East Fork Carson River management goals are based upon the following assumptions:

^{4/} Including optimum numbers of adult trout (age 3 and older, 8 inches and greater) to maintain adequate spawning stock and to provide quality angling in terms of catch per hour and size of trout. (Specific numbers to be identified with the implementation of this plan.)

TABLE 1. Estimated Angler Use in the Wild Trout Section, 1974 and 1975.

Area	Distance (miles)	1974 Annual fishermen per mile	1975 Expanded use
Wolf Creek to Bagley Creek	3	300	984
Bagley Creek to Carson Falls	11	100-200	328-656
Carson Falls	2	100	328

1. The demand for wild trout angling opportunities in California will continue and perhaps increase.
2. Wild trout anglers will continue to be more interested in the pleasure of fishing and in the challenge of catching wild, "hard-to-catch" trout in attractive surroundings than in other angling convenience or the potential for creeling many trout.
3. The Department of Fish and Game will continue to manage the East Fork Carson River wild trout area for wild trout and hatchery trout will not be planted.

Management Direction

1. Determine the dynamics of the East Fork Carson River fishery and make angling regulations changes, if needed, to achieve the goals of this plan (page 16).
2. Monitor fishery as described on page 17 of this plan.
3. Conduct aerial surveillance of the watershed to determine if management objectives are being achieved.
4. Assure that all agreements entered into pursuant to Fish and Game Code Sections 1601-1603 are consistent with the implementation of this plan, and closely monitor the agreements to assure that the provisions are being met.
5. Encourage Toiyabe National Forest to maintain the wilderness environment of the upper East Fork Carson River drainage. Specifically, the Department should support designation of the entire Carson-Iceberg wilderness study area (Management Units CI-1, CI-2, and CI-3) as wilderness.
6. Assist appropriate agencies' attempt to acquire, in the immediate future, the Sierra Pacific Power Company lands located in the upper drainage (see Figure 4, page 7).

7. Work with the Toiyabe National Forest to determine the impact of cattle grazing in the East Fork Carson River drainage and identify and implement remedial activities if needed (page 19).
8. Recommend construction of a fish barrier above the proposed Watasheamu Dam to prevent nongame fish proliferation in the East Fork Carson River (page 26).
9. Work with the landowners in the lower reach of the wild trout area to establish an agreement concerning access to the river.

Fishery Management

General trout angling regulations currently apply to the East Fork Carson River fishery below Carson Falls. The angling season extends from the last Saturday in April to November 15, the bag limit is ten trout but no more than 10 pounds and one fish. The East Fork above Carson Falls is closed to angling to protect the Lahontan cutthroat trout.

Results of electrofishing in the East Fork in 1974 and 1977 are inconclusive as to the effect angling is having upon the wild trout population (Appendix 1). To identify the impact of angling, the dynamics of the fishery need to be determined, including angling and natural mortality rates, growth rates, and recruitment rates. The sampling program outlined in Table 2 is designed to determine the fishery dynamics.

Another aspect of fishery management in the East Fork is the reestablishment of the threatened Lahontan cutthroat trout population. Potential activities which have been contemplated by the Department's threatened trout program include construction of a barrier near Bryant Creek, chemical treatment to remove nonnative fishes followed by reestablishment of native species, including Lahontan cutthroat trout, in the stream above the barrier. The reestablishment of the cutthroat would possibly be followed by development of a catch-and-release fishery above

TABLE 2. Fishery Management Activities on the East Fork Carson River.

-
- I. Transect evaluation to be initially conducted for 2 consecutive years then at 5-year intervals.
 - A. Establish three, 500 ft long, permanent sampling stations (Figure 7).
 - B. Make standing crop estimates using standard technique (mark-and-recapture or catch-and-removal).
 - C. Collect age, length and weight data for use in developing growth information, etc. (for trout only).
 - II. Tagging program to be repeated every 5 years to obtain fishery dynamics data and observe trends in angling use (to be conducted concurrent with transect evaluation).
 - III. In conjunction with the transect evaluation, and investigation of cattle grazing impact should be conducted. A study section (at least 1,000 ft long) should be established along one of the transects, which is located in an area of heavy grazing. Habitat and trout population data should be obtained, then one-half the section should be fenced to preclude cattle access. Follow up evaluations of both habitat and population should then be made at 5-year intervals.
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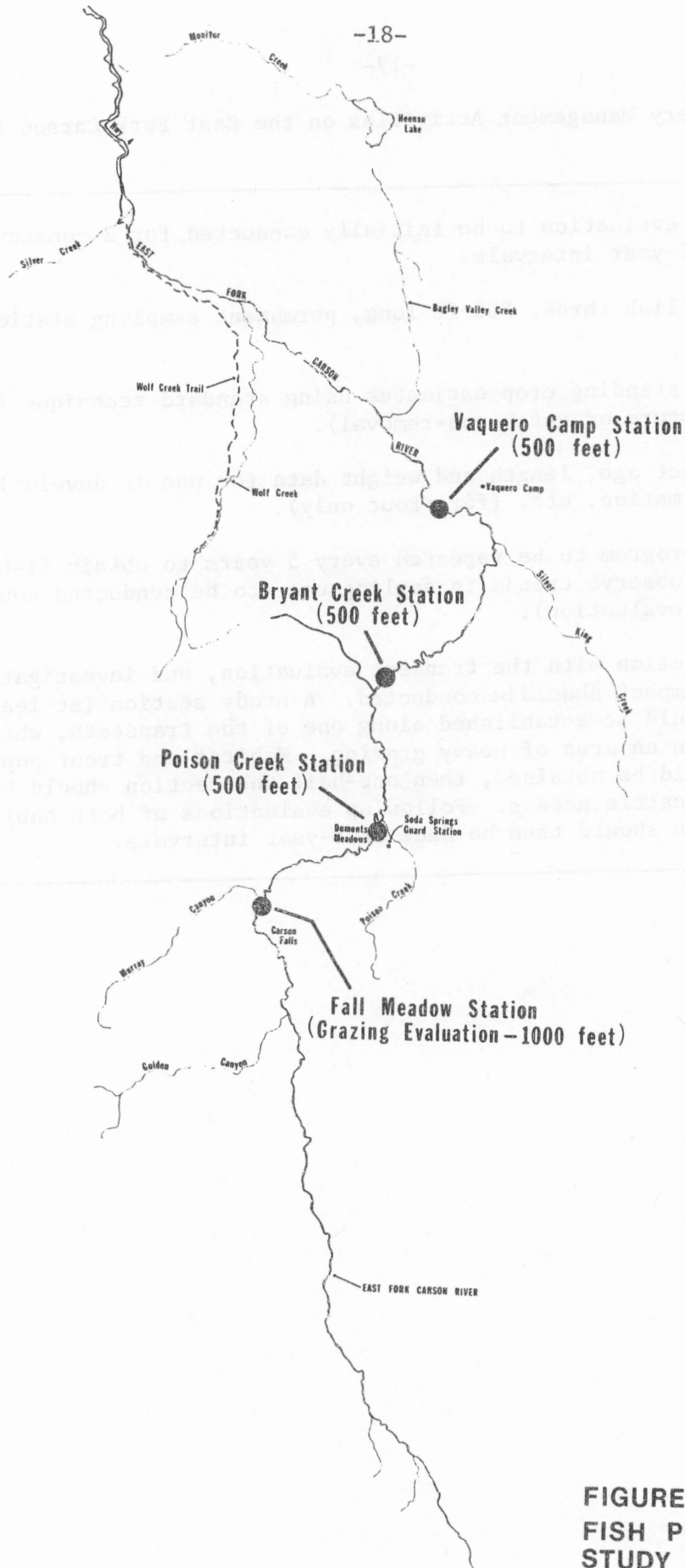


FIGURE 7
FISH POPULATION
STUDY STATIONS IN THE
EAST FORK CARSON
RIVER DRAINAGE.

the barrier to allow angling for Lahontan cutthroat trout while providing protection of this threatened species.

Recommendations

Implement the fishery evaluation outlined in Table 2 and continue to monitor the fishery also outlined in Table 2. Continue to evaluate methods of reestablishing the Lahontan cutthroat trout below Carson Falls. Evaluate the potential for opening the river above Carson Falls to angling.

Environmental Problems and Land Use Management

Land use adjacent to the wild trout section of the East Fork Carson River presently includes cattle grazing, dispersed recreation, and minor water development. Timber harvesting in the late 1800's and mineral prospecting in the early 1900's occurred along the wild trout section.

The Alpine Planning Unit Land Use Plan places all National Forest Lands contiguous to the wild trout section in the Carson-Iceberg Management Area. This management area consists of three management units (Figure 8): two (CI-1 and CI-2) are presently within the Carson-Iceberg Wilderness Study Area and the third (CI-3) is a proposed extension of the Wilderness Study area. Specific management direction as identified by the Forest Service for the management area (during the wilderness study period) includes:

1. Manage all uses and activities at a level that will maintain wilderness character.
2. Assure that Lahontan cutthroat trout habitat is maintained or enhanced.
3. Maintain existing corrals, fences, snow markers, and cabins.
4. Regulate recreation use to preserve scenic qualities along the Pacific Crest Trail and prevent site deterioration.
5. Prevent site deterioration and resource damage on sites receiving heavy recreation use.

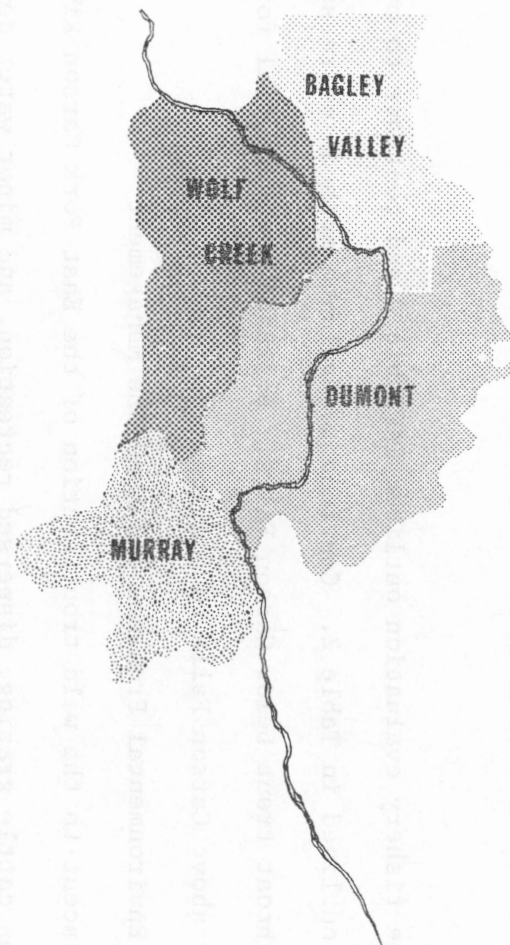
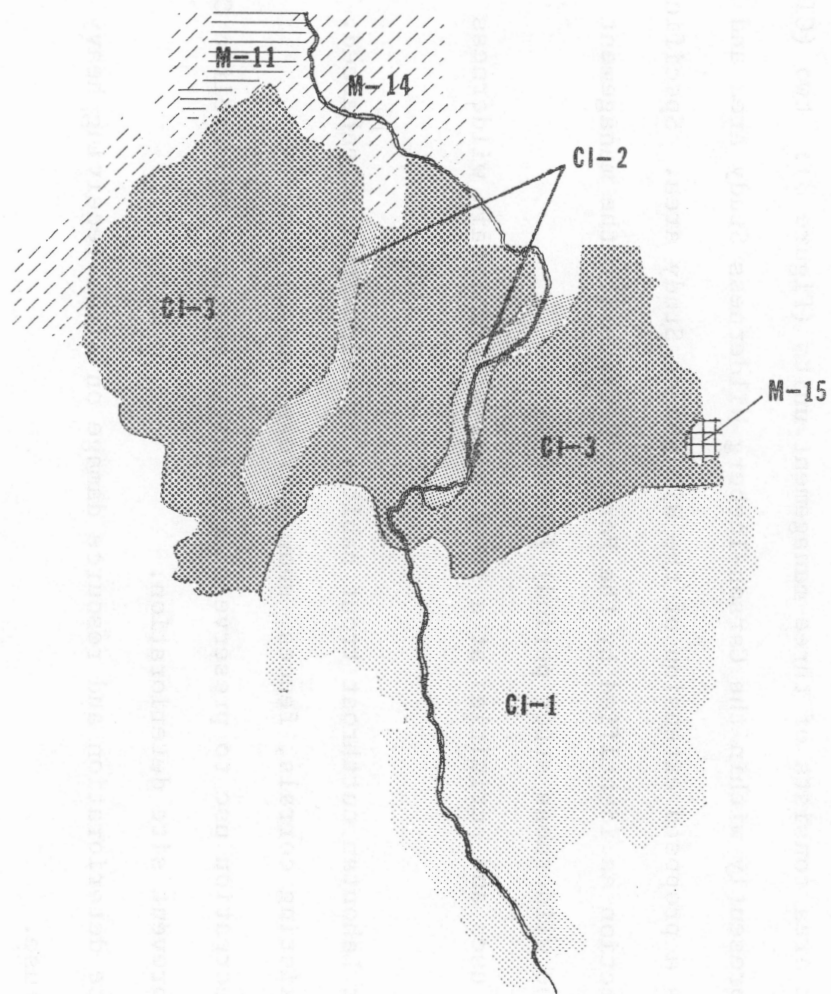
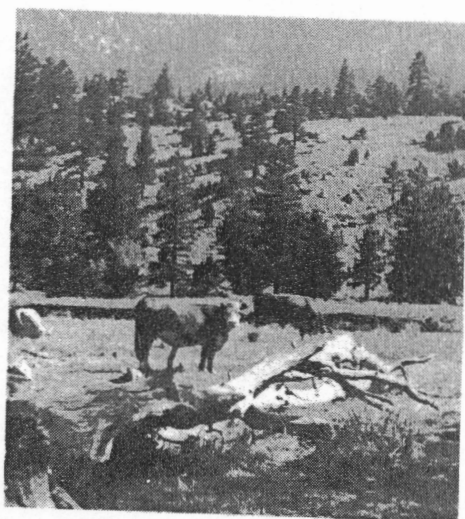


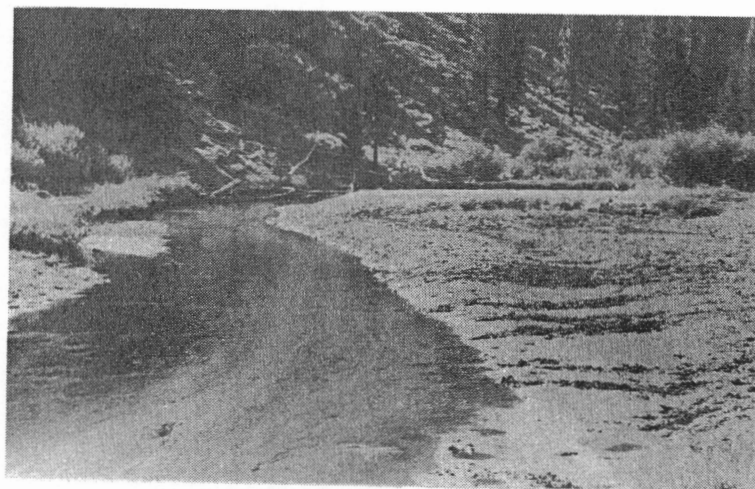
FIGURE 8 ALPINE PLANNING UNIT MANAGEMENT AREAS (left) AND CATTLE ALLOTMENTS (right) ADJACENT TO THE WILD TROUT MANAGEMENT AREA OF EAST FORK CARSON RIVER.



Trampled banks and absence of cover have left much of the upper meadow areas relatively unfit for fishlife and unattractive for trout angling.



Cattle in Fall Meadows.



6. Construct only those fences absolutely essential to protect wilderness characteristics from livestock use.
7. Work toward acquiring private lands.
8. Maintain water quality in conjunction with recreation use according to State standards.
9. Bulldozers will not be used in fire suppression or to build access to fires.
10. Restrict use of retardants in threatened trout habitat areas to locations away from live water.

Cattle Grazing

Cattle grazing on Forest Service land and on adjacent Sierra Pacific Power Company land is regulated by the Toiyabe National Forest. Six different ranches, under 10-year term permits (1976-1985) graze on these lands. Current grazing management areas situated adjacent to the wild trout area are identified in Table 3 and Figure 8.

Each grazing area, except Bagley Valley, is grazed under the deferred rotation system of range management. This system employs moving cattle to take advantage of protein production - grazing the valley in the early season and moving to higher elevations as the season progresses. Bagley Valley is grazed season long.

Where livestock grazing has been excessive, aquatic habitat has been affected. Bank sloughing has occurred, producing siltation and destroying cover especially in the meadow areas of the upper drainage. Bank associated cover is extremely critical in the meadows since these areas generally possess silt or sand bottoms with few or no rocks, trees, or other form of instream cover. Cattle grazing may also appear as an aesthetic conflict to some backcountry travelers.

Recommendations. The cattle grazing allotments identified in Table 3 would likely continue under wilderness classification since the Wilderness Act allows

TABLE 3. Grazing Allotment Situation Along the Wild Trout Section

Permittees	Cattle allot.	Range condition (acres)			Non-range	Total Live-acres N.F.	Live-stock no.	Existing stocking rate and season		Potential stocking rate AUMs	Management system	
		Good	Fair	Poor				Season	AUMs		Existing	Potential
1	Bagley Valley		260		108	368	5	6/11-10/20	22	22	Season long	Season long
1	Dumont	509	6,539	2,021	7,628	16,697	252	7/15-9/30	638	700	Deferred rotation	Deferred rotation
1	Murray	94	1,134	829	6,806	8,963	114	7/16-9/30	285	285	Deferred rotation	Rest rotation
1	Noble Canyon	223	2,696	1,828	12,238	16,995	186	6/26-9/30	533	404	Rest rotation	Rest rotation

grazing. Fencing of streams to prevent cattle from breaking down banks and adoption of "rest-rotation" grazing management would potentially allow eroding stream banks to stabilize to a greater degree and could be implemented without significantly impairing the wilderness characteristics of the study area (Kimbal, 1977).

The Department should work with the Toiyabe National Forest to identify a range management program which would protect the aquatic resources of the river and still allow grazing of the meadow areas.

An evaluation of the effect of changes in range management upon the aquatic habitat, fish population, and productivity of the range could be conducted simultaneously in Dumont and Fall meadows using the methods identified by Kimbal (1977) and by incorporating the fishery management study (Table 2, page 17) into the evaluation.

Recreation

Heavy dispersed recreation^{5/} use occurs in the upper portion of the East Fork Carson River drainage during the summer. Backpackers, hikers, horseback riders, and fishermen annually use the area.

Recreational use of the East Fork drainage above Wolf Creek has substantially increased in recent years. Based upon August use data (Table 4), a 581% increase in use occurred between 1972 and 1975 (use figures are not comparable in June and July due to the strong influence of the weather on early summer trail conditions). The increase is apparently due to the routing of the Pacific Crest Trail through the area and a growing interest in dispersed recreation where resource damage is occurring is totally amenable with this plan.

^{5/} Where the natural environment is the attraction and facilities are for distribution of users.

TABLE 4. The 1972-1975 Summer Month Visitor Day (12 Hour Period) Usage in East Carson River.

	1972	1973	1974	1975
June	28	4	21	0
July	53	46	92	13
August	26	46	139	151
Totals	107	96	252	164
Total adjusted for days not counted	177	146	388	244

Summer Home Development

The private inholdings in the East Fork Carson River valley are attractive areas for future summer home development. Such development would destroy the primitive, natural character of the drainage, increase demands on water, generate waste water, increase recreational pressure on the resource of the drainage and probably result in closure of private lands to trespass, eliminating public access to portions of the wild trout area.

Recommendations. The most efficient and equitable means of preventing incompatible development of private lands is public acquisition. Immediate acquisition of the Sierra Pacific lands in the wild trout area should be sought before the price becomes prohibitive and/or other uses for the area are proposed. The federal government would purchase these lands if the Carson-Iceberg Wilderness Study Area becomes wilderness. However, time is of the essence and the federal acquisition would be at least 5 years from now.

Open space zoning or large parcel zoning to prevent incompatible development is an alternative to acquisition. The zoning, however, does not preclude closure of the land to trespass, thus access to the river. Nonetheless, if acquisition becomes impossible, the Department should seek rezoning of the private lands along the wild trout area to preclude road construction, housing development, or any other activity which does not presently occur on the land or which is incompatible with the intent of the plan. An agreement to continue to allow access to the lower reaches of the wild trout area or establishment of an access right-of-way or easement along the stream from Wolf Creek to Dumont Meadows should also be pursued.

Timber Management

Between 1870 and 1900 most of the timbered lands within the drainage were logged. Later these areas were burned then grazed. Now, with modern fire control and reduced cattle allotments, these areas are once again growing timber. Logging in the past did result in considerable stream habitat damage, including accelerated erosion and sedimentation.

The timber resource located within the East Fork Carson River valley is described as having excellent potential - up to 16,000 to 17,000 board ft/acre. Presently, timber volume is about 9,000 board ft/acre, being largely comprised of second growth and small saw timber. Most of the surrounding slopes are in the marginal component because of the soil slope situation.

Recommendations. The Land Management Plan lists all timber within the Carson-Iceberg Management Area in the deferred component - no logging will take place in the area. Similar action should be pursued for private land within the confines of management units CI-1, CI-2, and CI-3.

Water Development

Near the confluence of Silver King Creek and East Fork Carson River, a stream diversion draws water from Silver King Creek and irrigates the private pasture lands of Dangberg Livestock Company at Vaquero Camp. During some low water years the diversion nearly dewateres all of lower Silver King Creek. These conditions crowd fish, increase competition and predation, and in extreme cases, destroy fish and fertile eggs by desiccation. The diversion is not screened and some fish are diverted from the stream to open pasture lands. No estimates of losses have been made.

The Bureau of Reclamation's Washoe Project included Silver King Valley as an alternative site to the Watasheamu Dam. However, there is only a

remote possibility that the site will be developed (John Gallagher, Bureau of Reclamation, pers. commun.). If the site were developed, the resultant reservoir would inundate about 2.5 miles of the East Fork and about 0.5 miles of Silver King Creek. The potential for proliferation of nongame fish would also accompany the project.

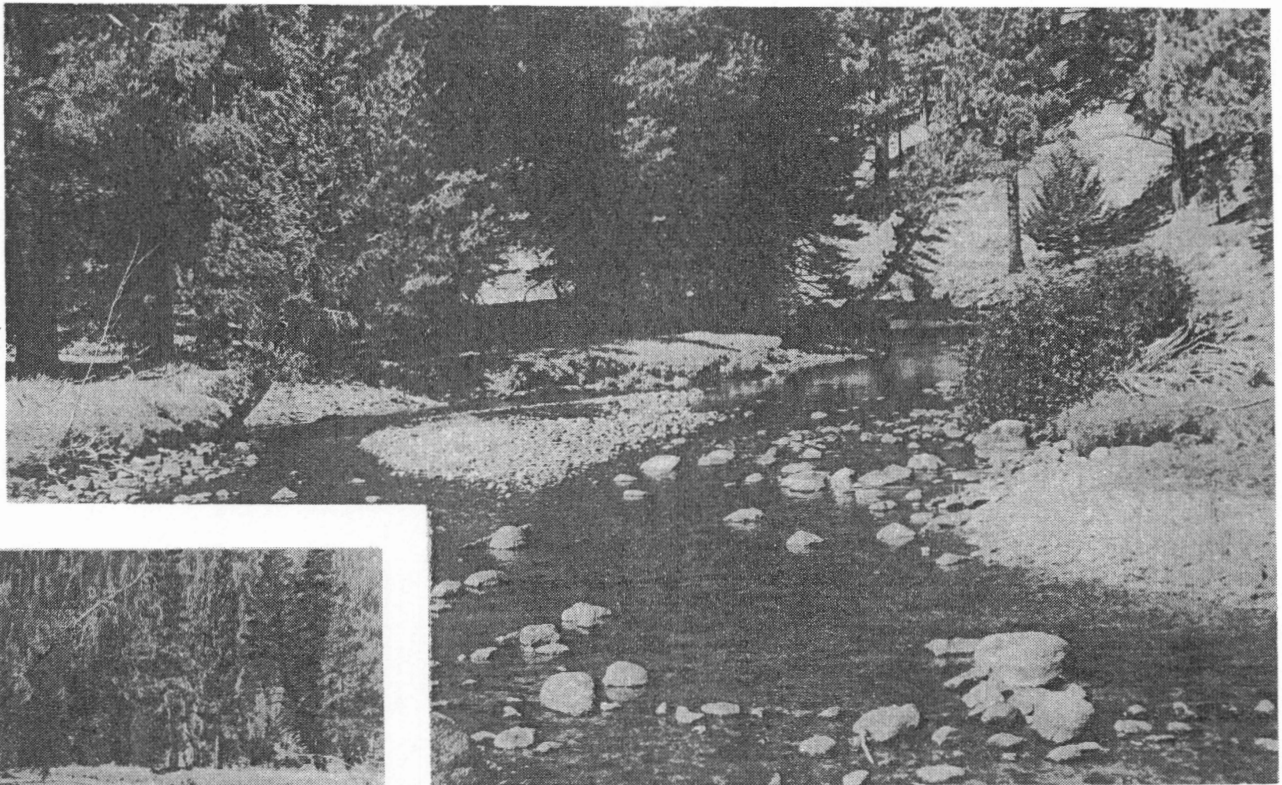
Watasheamu Dam, designated to store 160,000 acre-ft will inundate over 3 miles of the Carson River within Nevada and another 3 miles in California (John McLain, Soil Conservation Service, pers. commun.).

Recommendations. The possibility of nongame fish proliferation, including sucker, may threaten the East Fork if adequate safeguards, such as a fish barrier, are not included in the Watasheamu Dam project. Therefore, the proposed project should include a fish barrier.

MONITORING PROGRAM

A monitoring program should include periodic assessment of key qualities of the stream and its environment, and the monitoring of actions which can potentially affect the planning area. Monitoring of these two elements will allow the Department to remain informed of planning, regulating, and permitting activities and to the condition of the stream's environment and fishery.

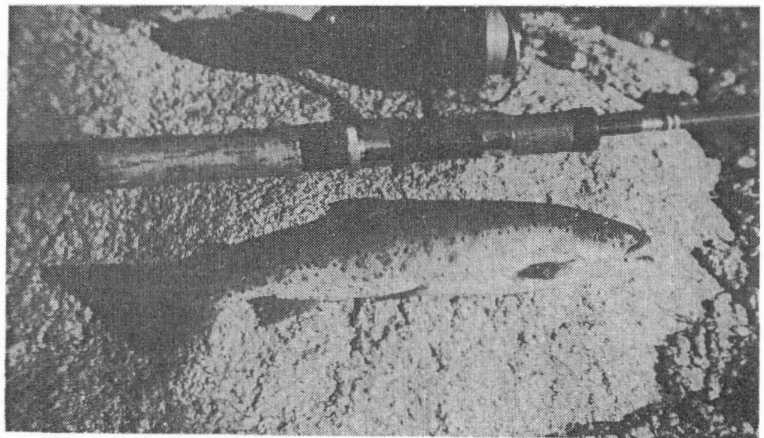
The Department of Fish and Game should review, on an informational basis, relative plans and permits of local, federal, and other state agencies. This could be accomplished by informal understandings with each agency within already established frameworks. These review and contact arrangements will provide constant and immediate feedback to the agencies who have regulatory authority within the planning area. By working closely and repeatedly with the various agencies, the Department should be able to directly help these agencies interpret and apply the intent of the management plan through careful use of their



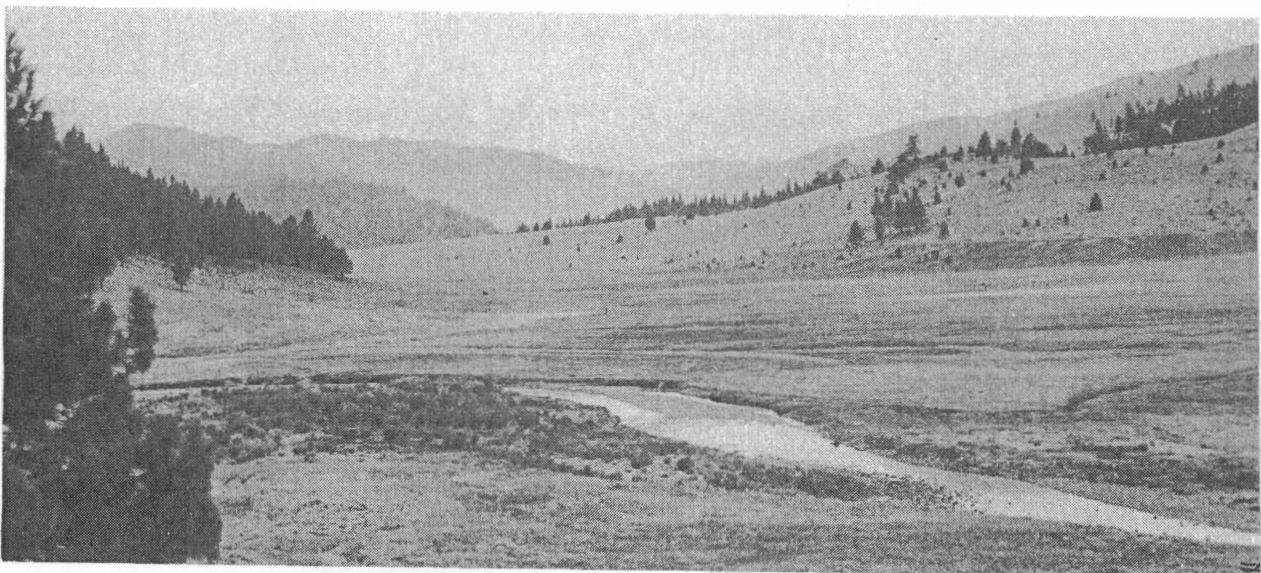
Below Dumont Meadow



Above Soda Springs



Lahontan cutthroat trout.



The East Fork near Silver King Creek.

planning and approval authorities. If initiated at the earliest stage of planning, allowing the Department time to comment prior to a decision being reached, the process will have its maximum beneficial effect. This process will also allow a continuing evaluation of the Management Plan and the extent to which it anticipates and recommends solutions for potential conflicts.

By providing for a flight surveillance, it would be possible for the Department to make general assessments of development activity, including mining, forestry, and road construction. Aerial photography can provide a historical record of those changes, constituting an irrefutable visual image of the past.

Monitoring of the fishery can be achieved following the program proposed in the Fishery Management Section of this plan.

Recommendations

Personnel of the Department of Fish and Game (Region 2) should remain in frequent communication with the USFS; Regional Water Quality Control Board, Central Valley Region; and other agencies that may be actively involved in the planning area.

Aerial surveillance of the drainage should be conducted on an annual basis and black and white aerial photographs be taken of the entire basin every 5 years, at a scale of about 1:15,000.

The fishery monitoring program discussed above should be initiated in 1983 and repeated every 5 years.

PROGRAM IMPLEMENTATION SCHEDULE

<u>Task</u>	<u>Department section responsible</u>	<u>Implementation date</u>
A. Fishery Management		
1. Conduct survey of fishery per Table 2.	Region 2	1978
2. Monitor fishery.	Region 2	Every 5 years starting in 1983.

<u>Task</u>	<u>Department section responsible</u>	<u>Implementation date</u>
B. Private Land Development		
1. Assist Wildlife Conservation Board in acquisition of Sierra Pacific lands in upper wild trout area.	Region 2	Immediately
2. Work with Alpine County to develop protective zoning for wild trout area.	Region 2	Immediately
3. Work with Toiyabe National Forest to implement Alpine Planning Unit Land Management Plan management directions for the wild trout area. Specifically encourage designation of the Carson-Iceberg Wilderness Study Area as wilderness.	Region 2	Immediately
C. Cattle Grazing		
1. Work with Toiyabe National Forest to identify protective range management activities in the wild trout area.	Region 2	Initiate in 1978
D. Water Development		
1. Recommend inclusion of fish barrier above Watasheamu Dam in the Washoe Project.	Region 2	Immediately
E. Monitoring		
1. Aerial surveillance.	Region 2	Annually
2. Aerial photographs.	Region 2	Every 5 years beginning in 1978

REFERENCES

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APPENDIX 1. Summary of Population Sampling Results for East Fork Carson River - August 1977, September 1978^{1/}

Section	No. trout per section ^{2/}		No. trout per mile		No. trout ≥6" per mile		No. rainbow trout/mile (%)		No. brown trout/mile (%)		No. white fish per mile	
	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978
Murray Canyon area	361 ^{3/}	--	1,900 ^{3/}	--	722	--	1,645 (86)	--	255 (14)	--	770	--
Upper Dumont Meadow area	--	53 ^{3/}	--	560 ^{3/}	--	347	--	180 (32)	--	380 (68)	--	539
Poison Creek area	238 (±12) ^{4/}	89 (±26)	1,240 (±63)	783 (±229)	370	352	370 (30)	282 (36)	870 (70)	501 (64)	<u>5/</u>	290
Bryant Creek area	296 (±24) ^{6/}	111 (±21)	1,660 (±135)	1,173 (±222)	830	380	996 (60)	824 (70)	674 (40)	349 (30)	500	287
Ford No. 3	--	158 ^{3/}	--	1,390 ^{3/}	--	443	--	818 (59)	--	572 (41)	--	328 ¹

^{1/}Using Seber-LeCren catch-and-removal method.

^{2/}Section lengths different in each year.

^{3/}Confidence limits exceed estimates.

^{4/}95% confidence limit.

^{5/}Whitefish present in section but no population estimate available.

^{6/}Second sampling pass incomplete by 25%. Data were used to extrapolate estimate.