

Collectively, these nesting characteristics make determinations as to the presence or absence of Bank Swallow colonies fairly straightforward. However, it should be noted that Rough-winged Swallows, Kingfishers, rodents, and other forms nest in somewhat similar burrows in banks, and one therefore must carefully examine evidence prior to making determinations.

THE SETTING

Most of the proposed power line (29 miles) lies in the Long Valley through which Long Valley Creek flows. This stream rises northwest of Peavine Mountain and flows generally north for more than 40 miles, emptying into Honey Lake, a playsa basin. The Long Valley is filled to a depth of 40 feet or more with glacial alluvium from the Late Pleistocene into which Long Valley Creek has cut entrenched meanders. These vertical stream banks appear superficially to be ideal for the Bank Swallow. However, the region receives only seven-inches of moisture a year on average and the terrain surrounding the stream is true desert. The dominant vegetation is sage (*Artemisia*), Bitterbrush (*Purshia*), Rabbit Brush (*Chrysothamnus*), Mormon Tea (*Ephedra*), and other arid species. The only arborescent (tree-like) plants are junipers (*Juniperus*) and occasional cottonwoods (*Populus*) and pine (*Pinus*). A number of dry-land grass species are also present.

In spite of the desert-like conditions prevailing over most of the easement, there is a small portion of the terrain at the 17-mile point (Poles 17/8-17/13) where a hot spring outflow has been used to create a lush meadow of grass. Also, from mile 20 to mile 26, irrigation along the Constantia Road has created alfalfa and hay fields more typical of bank Swallow foraging grounds, but none of the other riparian elements associated with the nesting ground of the bird is present.

Occasionally most of the time, Long Valley Creek is subject to periodic flooding of dramatic proportions. In February 1986, it went far beyond its banks washing out several sections of

U.S. Highway 395 and destroying a bridge north of Doyle. This has importance for Bank Swallow habitat since these events cut down existing stream banks and establish new ones.

SEASONAL CONSIDERATIONS

Although the field investigations were conducted at the end of the nesting season, numerous swallows of other species were observed allaying concerns that the absence of Bank Swallows was due to their departure for the winter.

FIELD WORK

The right-of-way was surveyed in three ways: aerial overflight, automobile, and on foot.

Aerial: The entire easement was overflown at 900 feet AGL in both directions to locate roads providing easiest access and to locate possible Bank Swallow habitat which might be difficult to see from the ground. Also, a better understanding of the topography of the easement in terms of Bank Swallow habitat was a major objective.

Automobile and On Foot: The entire right-of-way was viewed on the ground either from a vehicle or on foot. Binoculars were employed to verify habitat details when at a distance. To facilitate the locating of all potential Bank Swallow habitat, the aerial photo strips and engineering power line profiles provided by Power Engineers were consulted constantly.

FINDINGS

More than 99 percent of the right-of-way is unsuitable for Bank Swallow habitat because of its desert-like nature. There are two exceptions which will be identified with site numbers and more specifically with pole numbers (see map).

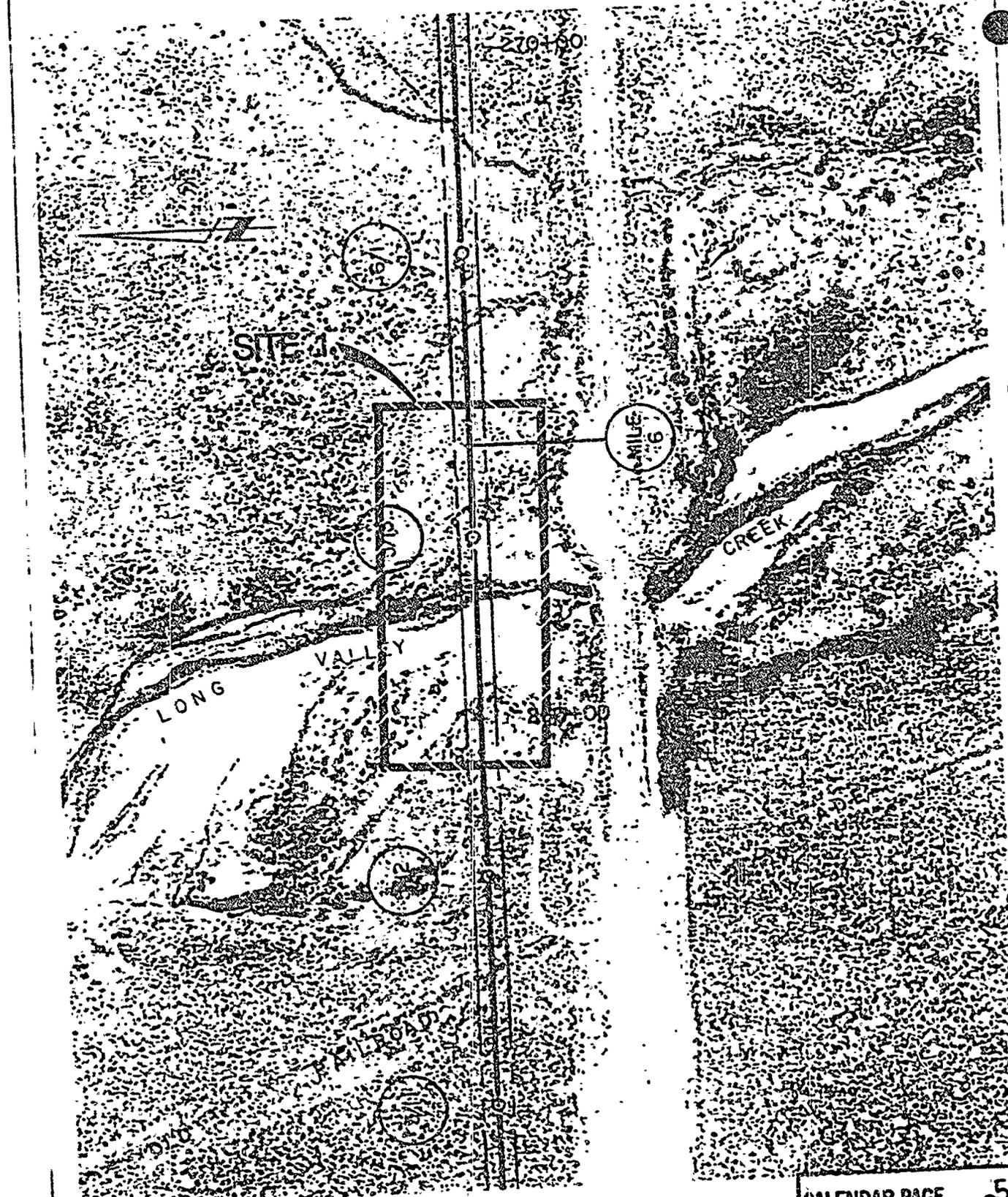
Site 1 - The first crossing of Long Valley Creek by the easement occurs adjacent to the highway bridge over Long Valley Creek on State Route 70. This is also between poles 5/12 and 5/13. At this point, there is an embankment about six feet high containing a burrow within the easement (see aerial photo and habitat photo). However, according to the characteristics of Bank Swallow nesting sites, this bank is too low, and nowhere in the vicinity could any other burrows be found for this colonial bird. It is believed to be an abandoned Rough-winged Swallow burrow. No Bank Swallows were seen.

Site 2 - The second crossing of Long Valley Creek by the easement is immediately east of the Pozzolan Plant between poles 13/4 and 13/5. Here the embankment on both sides of the stream is high (12 to 15 feet) and pierced by a number of burrows. However, the embankment on the east side of the stream is cross-crossed by a number of ledges providing access by terrestrial predators and ground squirrels were seen in several of the borrows, (see aerial and habitat photos). These mammals were also very active and apparent in the burrows in the west side of the stream. No Bank Swallow burrows were found and no Bank Swallows were seen.

ADDITIONAL FINDINGS

Several other potential Bank Swallow habitation sites were located adjacent to the easement and they are described here to throw additional light on the question of the presence or absence of the Bank Swallow along the easement.

Site 3 - One hundred feet south of the easement at mile 3, the west entrance of the Beckwourth Tunnel of the Western Pacific Railroad provides embankments 25 to 30 feet high. Several burrows were examined at this site but they were not numerous enough nor free of ground access to belong to Bank Swallows. No Bank Swallows were seen in the area.



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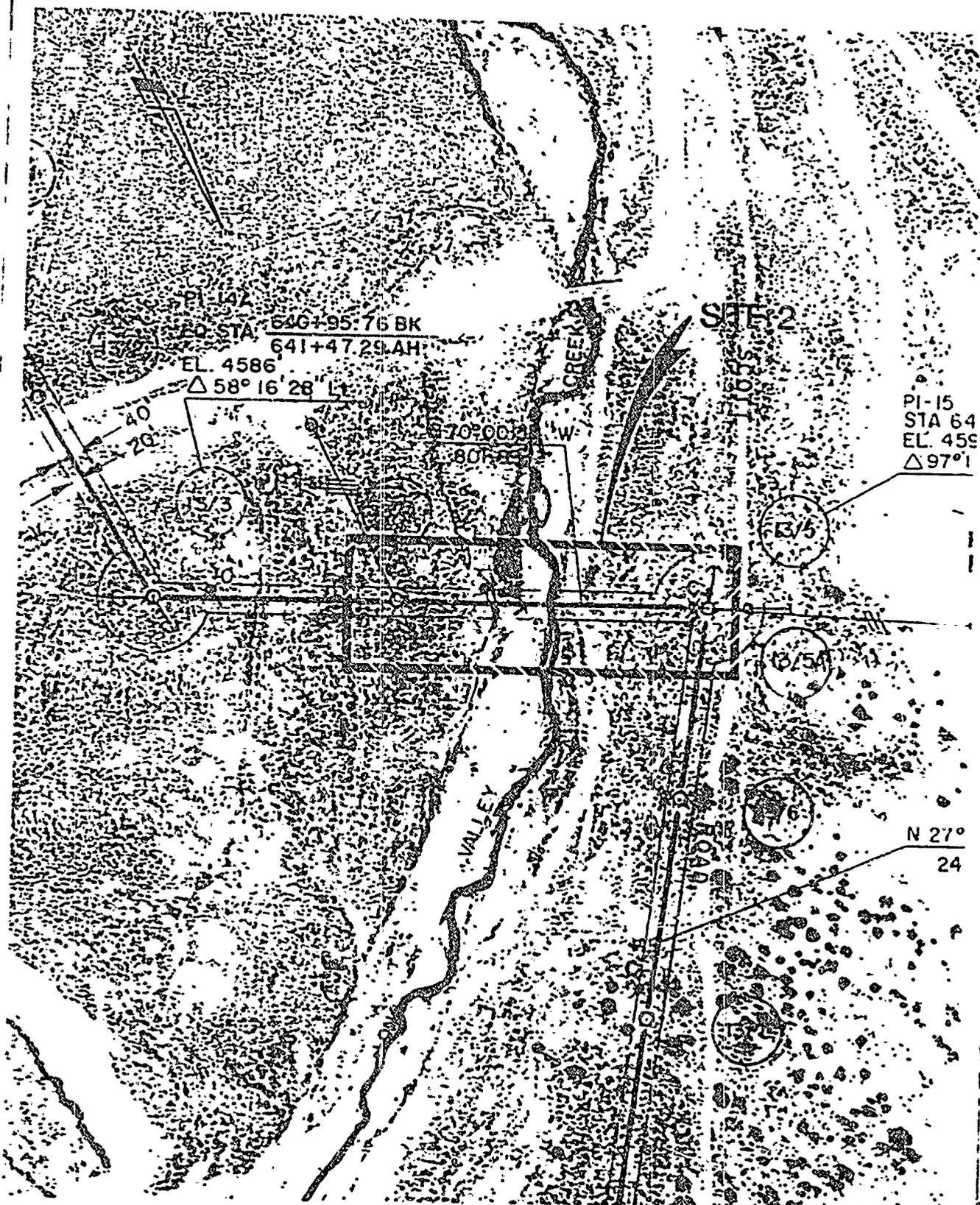




SITE 1
EAST BANK, LONG VALLEY CREEK

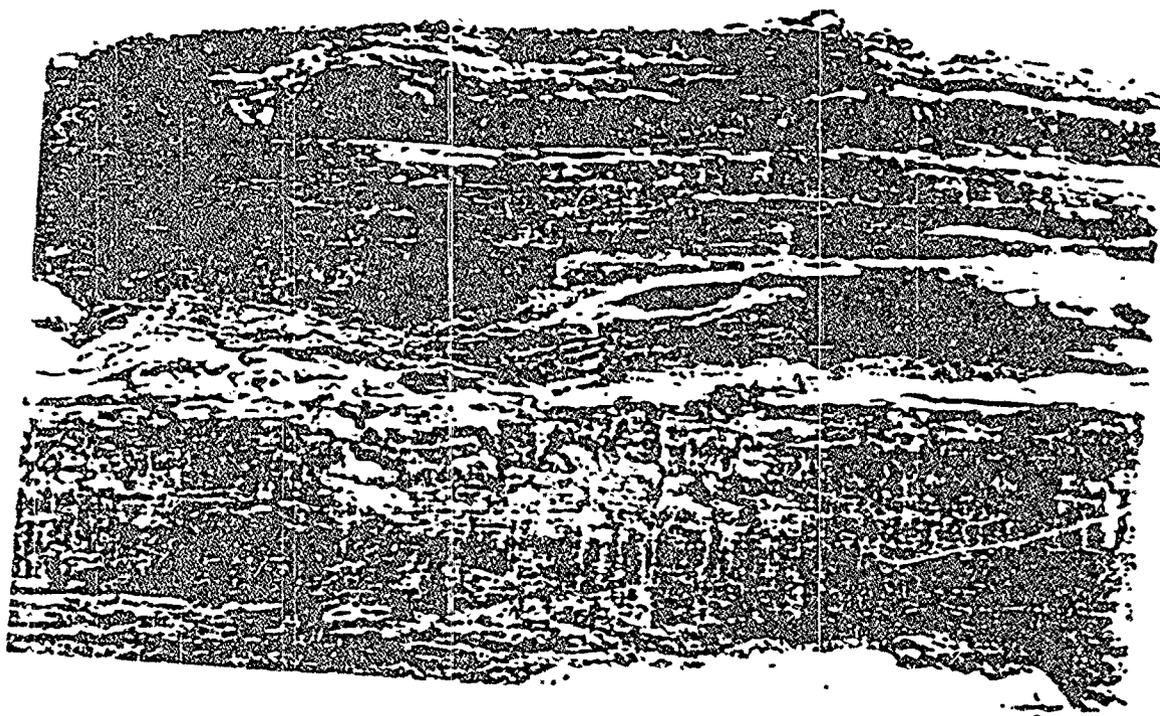
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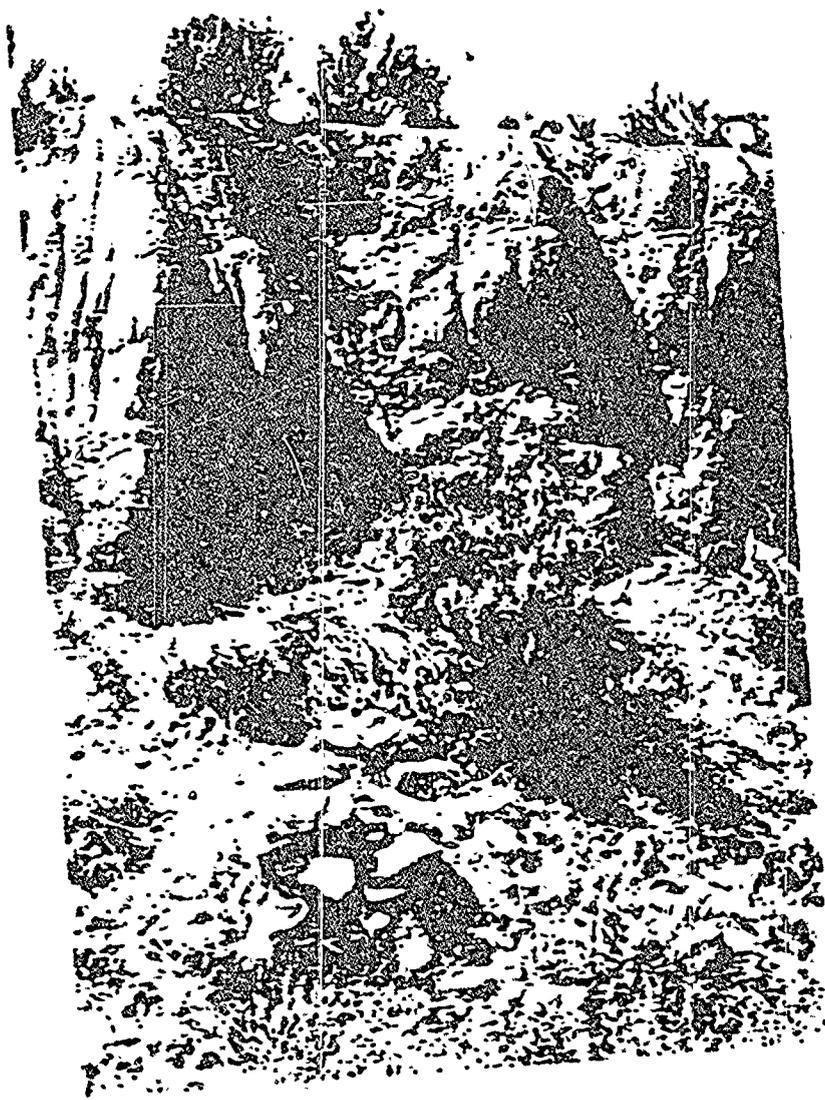




SITE 2
EAST BANK, LONG VALLEY CREEK

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SEA



SITE 2
WEST BANK, LONG VALLEY CREEK

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SES

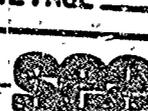
Site 4 - In the 1970's, the highway cut at the summit of Beckwourth Pass contained an embankment with a number of burrows which to this traveler appeared to be a potential site for Bank Swallows, but never investigated. It is of interest that it has now been completely destroyed by off-road motorcycles and an impromptu motocross course. It lies several hundred feet west of the easement just west of mile 4.

Site 5 - Two hundred feet east of the right-of-way at pole 18/1, an embankment above Long Valley Creek possesses a number of burrows. However, one of them was occupied by a Kestrel (American Sparrow Hawk) (Falco sparverius) which preys on young Bank Swallows as they sit at the entrance of their burrow before taking their first flight. No Bank Swallows were seen and none was expected under these circumstances.

Site 6 - At pole 22/1, in the centerline of the easement, a flock of about 60 swallows was observed sitting on the existing power line. Most of them were Violet-Green Swallows (Tachycineta thalassina) which nest in holes in aspen trees nearby. Several are Barn Swallows (Hirundo rustica) and one was a Cliff Swallow (Petrochelidon pyrrhonota). This was an important discovery since it suggests that the absence of Bank Swallows was not because all the swallows had departed on their southward migration. No Bank Swallows were seen.

Site 7 - About 300 feet east of pole 32/15 in the sand and gravel pit adjacent to the Heriong Substation, an embankment was found with several burrows. However, they were easily accessible from the ground and the other nesting characteristics were absent. No Bank Swallows were seen.

In summary, no Bank Swallow colonies or Bank Swallow habitat were found in the course of these investigations of the right-of-way and none was found adjacent to the right-of-way. No Bank Swallows were observed during this field work.



CONCLUSIONS

One can only conclude from these field investigations that:

1. There are no Bank Swallows or Bank Swallow habitat in the right-of-way of the proposed power line and, hence,
2. No construction mitigation measures will be required.

APPENDIX

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OWEN ALBERT KNORR
Background Information

EDUCATION

B.S. Colorado College - Biological Sciences (1951)
M.S. University of Colorado - Biological Sciences (1953)
Ph.D. University of Colorado - Biological Sciences (1956)

SCHOLASTIC

Phi Beta Kappa (junior year)
magna cum laude
Graduated 3rd of 383
Fellow, National Science Foundation
First recipient, Chapman Memorial Award, American Museum of
Natural History (for ornithological research)

PROFESSIONAL AFFILIATIONS -- PAST AND PRESENT

Statewide Higher Education Executive Officers Association
Association for Institutional Research (Charter Member)
American Conference of Academic Deans
American Association for the Advancement of Science
American Institute of Biological Science
Sigma Xi (scientific honorary)
Phi Sigma (biological honorary)
American Ornithologists Union
Ecological Society of America

TEACHING EXPERIENCE (FULL-TIME)

Instructor in Biology, University of Colorado (1956-1958)
Assistant Professor of Biology, University of Colorado (1958-1960)
Associate Professor of Biology, University of Colorado (1960-1963)
Professor of Biology, University of Colorado (1963-1965)
Member, Graduate Faculty, University of Colorado (1961-1965)

TEACHING EXPERIENCE (PART-TIME)

- Assistant in Biology, Colorado College (1947-1951)
- Instructor in Biology, University of Colorado (1951-1956)
- Occasional Lecturer in Higher Education, State University of New York (1965-1968)
- Visiting Professor in Biological Science, California State University, Sacramento (1971) (1973-1974)
- Professor of Biology, University of Nevada (1975-

COURSES TAUGHT

- Area of Primary Discipline - General Biology
General Ecology
Human Parasitology
Ornithology
- Administrative Area - Problems & Issues in American Higher Education

RESEARCH EXPERIENCE

- Surveying the blood Protozoa of western birds
National Geographic Ornithological Expedition to the Mexican Border
- Distribution of the Black Swift in Western America
- Population dynamics of the Grasshopper Sparrow
- Research Associate, Institute of Arctic and Alpine Research, University of Colorado; engaged in studying the ecosystems of the Front Range of the Colorado Rocky Mountains and associated ecological problems (part-time under various contracts with Atomic Energy Commission; Snow, Ice and Permafrost Research Establishment; U.S. Army Quartermaster Corps Research and Development Office)
- General higher educational research in administration of institutions and statewide systems of higher education

ADMINISTRATIVE AND COMMITTEE EXPERIENCE

- Chairman of Biology, University of Colorado, Denver Campus, (1956-1959)
- Chairman, Faculty-Administration Advisory Group, University of Colorado (1957-60)
- Chairman, Faculty Senate Committee on the Budget, University of Colorado (1963)

ADMINISTRATIVE AND COMMITTEE EXPERIENCE continued

- Member, Special Faculty Liaison Committee to the Colorado State Legislature (1962-1963)
- Academic Dean, University of Colorado, Denver Campus (1958-1963)
- Director, Division of Higher Education, University of the State of New York (Staff of the Board of Regents) (1963-1968)
- Executive Director, California Coordinating Council for Higher Education (1968-1974)
- Member, Board of Governors, Institute for Technology and Society (1970-1972)
- Commissioner, Education Commission of the States (1970-1974)
- Member, Board of Governors, California Maritime Academy (1973-1974)
- Member, Executive Committee, International Council of Academic Institutions (1973-1976)
- Chairman, Articulation Board, University of Nevada (1974-1975)
- Chairman, Academic Standards Committee, University of Nevada (1974-1975)
- Member, Accrediting Teams, Western Association of Schools and Colleges, North-Central Association, and Middle States Association

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