BIOLOGICAL/ENVIRONMENTAL RELATIONSHIPS
IN DESERT ECOSYSTEMS OF THE NEVADA TEST SITE

Progress Report

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Technical Progress Report, February 1, 1975 - January 31, 1976.

Investigator worked essentially full-time on the completion of the compilation of the vascular flora of the Test Site and central-southern Nevada, during the months of February and March, 1975 (without either an AEC contract or a University appointment until the end of February). The 260-page draft was completed, with final typing by mid-March, after which copies of the appropriate sections were sent for review to the group monographers who have worked with the investigator through the years on the taxonomic interpretations of the flora. Copies of the entire compilation, for editing, went to James L. Reveal, University of Maryland and the Smithsonian Institution, and to personnel of the New York Botanical Garden where the Intermountain Flora is being written.

On March 30, investigator left (by personal vehicle) for Denver, Colorado, where arrangements were made with William Twenhofel of the U. S. Geological Survey (shortly thereafter approved by Ernest Campbell, NVOO) for an unnamed member of the Survey to write the section on geology and geologic history of the region for the flora publication. She also visited one day the ARCO C-b shale oil tract in Piceance Creek enroute west from Denver.

Beginning April 14, and continuing until early June (8 weeks), with the help of Michael Mispagel of Long Beach State University, who was hired with the status of Consultant with funds remaining from the first two years of the contract, the 1100 ft. of perennial lines were re-run on all 68 of the investigator's study sites at the Nevada Test Site. The investigator keypunched the data at nights and on weekends (around 20,000 IBM cards), so that the data reductions might be accomplished at the Test Site. Programs were revised (or rewritten) by Bernardo Maza, and the same parameters were obtained for all perennial (shrub and herbaceous) species as were obtained along the same total 15 miles of lines in 1963. The data will be used, along with other data collected in past years, in a manuscript to be prepared this summer, dealing with changes in desert vegetation through time and the effects of disturbance. During the 12-year period, there was a significant increase in shrub cover on nearly all of the sites.

During the spring, the investigator's Plot 24 in central Frenchman Flat was the casualty of a road construction operation superimposed on the study site (essentially to the fence on two sides of the 100 x 100 ft. plot). Three days were spent by the investigator in the covering up (with the road-scrapings) of two applications of oil to the road and road-turnaround in front of the plot, which profoundly changed the surface albedo within 8 ft. from where she had measured air temperatures for 10 years. On four additional days, a total of 465 surveyor's stakes were installed around the road-turnaround and perimeter of a roughly 1000 x 1000 ft. area, and the stakes connected by a rope fence, in an effort to protect the study site from further irreversible damage.

The remaining time, until the second week in July, was spent taking landscape photographs as illustrations for the flora, completion of the drafting of three maps for the book, and working with the REECO Printing Plant on the proofs and final reproductions of the photographs and maps.

Around 150 plant collections were made, primarily from the Papoose Range, from which there had been no previous collections because of special access requirements to Area 51, and additional collections from Bald Mountain of the Groom Range. Investigator's herbarium assistant since 1962, Mrs. Kathleen MacKay, was hired (also on a Consultant basis) for two weeks to mount the specimens. The last four evenings the investigator spent re-pounding all surveyor's stakes, and tightening the rope fence, on her Site 24, before she would be leaving for an undetermined length of time.

There was not follow-through by the U. S. Geological Survey on the agreement made in April, and it was necessary to return to Denver, enroute home to Cincinnati in mid-July, where Frank M. Byers, Jr., on short notice had assembled the relevant geological literature for use by the investigator in writing the section on the geology of the region. From July 20-31, the flora compilation was updated to its final form, and the month of August was spent in writing the 120-page text to accompany the compilation. All was completed and the 400-page manuscript delivered to Robert F. Pigeon in Washington the middle of September. The following week a vegetation map was prepared, for inclusion as Figure 4.

School resumed September 28, and investigator is presently (October, 1975) teaching Plant Ecology the fall quarter. Christmas vacation will be spent in the revision of a manuscript, and the writing of another manuscript on the distribution of Buckeyes in Ohio, the latter a project for which all data had been collected and the work interrupted when the investigator left eastern U. S. in 1960. January 1976 will be devoted full-time to the Test Site research.

During this third year, more than 9 months will have been spent full-time on the AEC research. All work proposed has been completed, as stated it would be in the Proposed Technical Program for this year, except for the help to Dr. William A. Rhoads, which was not possible because of regional failure of winter annual populations in southern Nevada during the season, autumn 1974 - spring 1975.

Publications

- Reveal, James L. and Janice C. Beatley. 1974. A new variety of Penstemon thurberi (Scrophulariaceae). Great Basin Natur. 34: 230. (COO-2307-7).
- Beatley, Janice C. 1975. Climates and vegetation pattern across the Mojave/ Great Basin desert transition of southern Nevada. Amer. Midl. Natur. 93: 53-70. (COO-2307-2).
- Beatley, Janice C. 1976. Environments of kangaroo rats (Dipodomys) and effects of environmental change on populations in southern Nevada. J. Mamm. 57(1): (in press). (COO-2307-5).
- Beatley, Janice C. Relationships of fluctuating plant populations and rainfall to distributions and numbers of desert rodents. Ms., 28 p., 6 figs., 1 table (to be re-submitted, with minor changes, in December). (COO-2307-6).

Beatley, Janice C. Ecologic and geographic distributions of the vascular plants of the Nevada Test Site and central-southern Nevada. Ms., 400 p., 28 figs. (including 4 maps). (in press). This is the concluding report on the vascular plants of the region, superceding the 6 progress reports of the period 1962-1973.