Minutes of the 55-1 Meeting of the Phreatophyte Subcommittee
23 March 1955
Berkeley, California

1. The 55-1 meeting of the PSFIATC Phreatophyte Subcommittee was held in Room 222 Post Office Building, Berkeley, California, on March 23, 1955, with the following members and visitors present:

- Harry F. Blaney Agricultural Research Service Los Angeles, Calif.
- H. G. Fletcher U. S. Forest Service Tempe, Arizona
- Robert H. Rupkey Bureau of Indian Affairs Phoenix, Arizona

Members absent:
- H. F. Arle U. S. Dept. of Agriculture Phoenix, Arizona

Visitors:
- Dean Muckel Agricultural Research Serv. Berkeley, Calif.
- J. van de Erve U. S. Dept. of Commerce Sacramento, Calif.

2. The chairman called the meeting to order at 1:15 p.m., introduced the visitors and welcomed them to the meeting. For the benefit of the visitors, he gave a brief outline of the functions of the Phreatophyte Subcommittee, the problems involved, and the various methods proposed in the eradication and control of undesirable water-loving plants along floodways and channel areas.

3. Items of business: The minutes of the previous 54-4 meeting were read by the Secretary, Mr. Cremer, and, with the exception of two changes, were approved. The changes are as follows: On page 2, item 6, 5th line, delete as Secretary of the Hydrology Section "of" and substitute therefore "and". On page 4, item 17, last line, delete the word "evaporation" and substitute therefore "evapo-transpiration".

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4. At the last meeting, the parent committee suggested that the subcommittee meet, wherever the majority of the members agreed to. A pending reorganization and new title of the parent committee made this diversification of meeting place and time possible. The city of Berkeley, California, was selected and the continuation of the phreatophyte research work was recommended. The chairman referred to past attendance at the regular meetings and reported that the Corps of Engineers had the only 100 percent representation.

5. Local problems of concern in the field of water and related land-use resources were discussed. Among the problems, the study of use of water by phreatophytes and hydrophytes (water-loving vegetation) in the San Francisco Bay area was discussed by Mr. Blaney. He pointed out that evaporation from a Weather Bureau pan could be used to estimate evapo-transpiration loss of these types of vegetation. It was suggested that Mr. Blaney prepare a report on the relation between the evaporation loss of water surface and the evapo-transpiration loss by water-loving vegetation for the 55-2 June subcommittee meeting.

6. The chairman read letters from the following persons:

   a. Letter dated 15 March 1955 from Mr. Arle, Agricultural Research Service stated that during the dormant season of saltcedar no additional work was done and he had nothing to report in the way of new accomplishments and was not planning to attend the next meeting.

   b. Letter dated 14 March 1955 from Mr. Burge, Department of the Interior, stated that in Mr. Larson's absence, he was quite sure that the proposed place for the next meeting of the Phreatophyte Subcommittee would meet with his approval.

   c. Letter dated 23 February 1955 from Mr. Beckman of the Geological Survey, Rolla, Missouri, inclosed a copy of a memorandum on "Phreatophyte Control" from the Chairman of the Missouri Basin Field Committee to the Director of the Technical Review Staff. He stated that the research work of the Geological Survey with respect to phreatophytes is encouraged. He also stated that the information furnished regarding phreatophytes and the investigations related thereto proved to be very interesting and useful to the members of the Missouri Basin Field Committee.

   d. Letter dated 25 February 1955 from Mr. Mosbaugh, Department of the Interior, Missouri Basin Field Committee, is shown as attachment No. 1. The first paragraph, last line, should be corrected to "Tamarix gallica". Tamarix gallica is synonymously referred to as French tamarisk and as saltcedar.

   e. Letter dated 25 February 1955 from Mr. Tayler, Acting Regional Director, Bureau of Reclamation, states that cooperative investigations have been conducted with the Agricultural Experiment Station of the University of Arizona to investigate and report upon insect relationships, plant diseases, and parasitic associations of organisms to saltcedar.
f. Letter dated 23 February 1955 from Mr. Borland, Bureau of Reclamation, stated that he was unable to attend the meeting, but requested that a representative from Region 2, Sacramento, California, attend. He mentioned that he talked with Mr. Bowser at Boulder City, Nevada, with reference to serving on the Phreatophyte Subcommittee. Mr. Bowser stated that he would like to serve on the subcommittee. Accordingly, Mr. Borland discussed the matter with Mr. Nielsen, Regional Director, who informed Mr. Borland that Mr. Bowser was a very busy man and could not be spared long enough to attend the Phreatophyte Subcommittee meetings. Mr. Borland stated to Mr. Nielsen that he considered representation of the Bureau of Reclamation by Mr. Bowser important.

g. Letter dated 28 January 1955 from Mr. Nielsen is shown as attachment No. 2.

h. Letter dated 6 January 1955 from Mr. Fletcher, Forest Service, stated that he had received a letter from Mr. Bachelor, librarian at the Arizona State College, in which he affirms his position concerning the housing of photographs, pictures, and slides for the phreatophyte collection. This letter, dated 5 January 1955, is shown as attachment No. 3. A motion was made by Mr. Cremer to use the facilities of the Arizona State College for housing or depository for photos and phreatophyte materials, which was seconded by Mr. Rupkey.

7. Mr. Glaney moved to have Mr. Bowser of the Bureau of Reclamation appointed to the Phreatophyte Subcommittee because it was understood that the new director John P. Jones might make it possible for Mr. Bowser to serve on the subcommittee.

8. Copies of paper on "Insects Associated with Saltcedar in Southern Arizona" were distributed in addition to Bulletin No. 50, "Use of Water by Native Vegetation," Bulletin No. 54 and 54-A, "Evaporation from Water Surface in California," and a report on "Rates of Evaporation and Consumptive Use in the San Francisco Bay and Adjacent Areas."

9. Because the problem of evaporation loss of water areas is so closely related with phreatophyte problems, some discussion followed. The subcommittee felt it should include evaporation loss studies with phreatophyte problems. Estimates of evaporation losses at Lake Mead, Salton Sea, Death Valley, and other areas were discussed with use of various types of coefficients and formulas, and differences between normal and windy locations of water areas.

10. The chairman requested that Mr. Blaney furnish, if possible, mimeograph copies of the Tenth General Assembly of the International Union of Geodesy and Geophysics in Rome, Italy, which he attended. The chairman also gave a short report on his recent tour in the east regarding phreatophyte problems. He elaborated on some of the areas visited throughout a large number of cities toured. He also furnished the Missouri Basin
Field Committee information relative to our phreatophyte eradication studies and research. Portions of this information are given in letter dated 25 February 1955 by Mr. Mosbaugh to Director, Technical Review Staff.

11. The progress of saltcedar investigation and the history of introduction of saltcedar were discussed, and a letter from Mr. Nielsen relative thereto was read. A symposium on phreatophyte problems with the American Geophysics Union was presented and discussed. It was decided that all agencies interested be represented at that time. Mr. Blaney stated that he would talk to Mr. Rubberty and get his views on the matter. The chairman showed the magazine Science and spoke on an article regarding the International Arid Lands Meeting in Albuquerque, New Mexico, on 26-29 April.

12. Mr. Mackel, Agricultural Research Service, gave a short talk in connection with the evapo-transpiration studies of the San Francisco Bay Region which the Agricultural Research Service is conducting in cooperation with the State of California and the Navy.

13. The Secretary showed colored slides of phreatophyte eradication in the floodway of the Rio Grande River below El Paso, Texas, by mechanical means of an 84-inch Servis brush cutter with W-6 International diesel tractor.

14. A technical program, arranged through the efforts of the chairman, involved a field tour of the area involved in the proposed San Francisco Bay Salt Water Barrier on 24 March.

15. Appreciation was extended to Mr. W. W. McLaughlin, retired from the Department of Agriculture, by the subcommittee for attending the meeting.

16. The place and time for the next 55-2 June meeting could not be definitely decided upon.

17. As there was no other business the meeting was adjourned at 5 p.m.

Respectfully submitted,

/s/ Henry J. Cramer,
/t/ HENRY J. CREMER, Secretary
Phreatophyte Subcommittee
Pacific Southwest Federal Inter-Agency Technical Committee
Memorandum

To: Director, Technical Review Staff

From: Harrell P. Mosbaugh, Chairman

Subject: Phreatophyte Control

In response to your memorandum of September 26, 1954, this subject was presented to the Missouri Basin Field Committee during its meeting on January 13th and 14th. The first consideration was given to the numerous species of water consuming plants which are classified as phreatophytes. Because of the detrimental and beneficial qualities of numerous species involved in this category, it was agreed to limit comments and suggestions to tamarisk gallica (salt cedar).

Salt cedar is not considered to be a problem on the public domain in the Missouri River Drainage. The plant is present on public land in a few water courses of the Basin, but no observations indicate that in its present density the plant presents a problem of significant competition with other plants, or that it offers obstruction to the flow of water. It may serve to prevent some undue erosion of stream beds. Because other undesirable plants such as sage brush and halophyton are of much greater economic importance, control programs in the Missouri Basin are directed to these plants rather than to salt cedar.

The only salt cedar problem that has come to the attention of Region 6, Bureau of Reclamation is in the channel of Five Mile Creek on the Riverton Project. At the present time, this may be more beneficial than harmful in controlling erosion. There is no current program for controlling salt cedar in the Region.

In recent years an alarming increase in salt cedar infestations in Region 7 of the Bureau of Reclamation has been observed around the irrigation pond of Cedar Bluff Reservoir on the Smoky Hill River near Ellis, Kansas; along the shore line of Harry Strunk Lake on Medicine Creek near Cambridge, Nebraska; the shore line of Enders Reservoir on Frenchman Creek near Imperial, Nebraska; and along the North Platte River channel near Scottsbluff, Nebraska. The most serious infestation appears to be around Cedar Bluff Reservoir where it was first noted in 1952. It is now estimated to cover about 1,300 acres. The oldest trees which are three years old have reached a height of 4 to 7 ft and have a trunk diameter measuring 2 inches or less. The infestation is believed to have originated from salt cedar plantings for windbreak and beautification purposes on farm lands.
in the watershed areas. Data obtained indicate that salt cedar can thrive in the Kansas climate and will continue to spread if not checked. Salt cedar is still being planted in the lower part of the Basin as a desired ornamental, and as a part of tree windbreaks.

The Geological Survey has been making rather extensive studies during most of the past decade of the water consumption by phreatophytes in the Southwest and plans to continue this type of work for an indefinite period of time.

Interior's current participation in phreatophyte control program is limited to that of the Bureau of Reclamation, Region 7, confined solely to the infestations on the Cedar Bluff Reservoir which were summarized in Attachment B of the Minutes of the January 13 and 14 meeting of the Field Committee.

The following suggestions are made for your consideration:

1. The Agricultural Research Service of the Department of Agriculture be requested to initiate research on control and eradication of salt cedar.

2. The Department of Interior extend to the Department of Agriculture its support and cooperation in securing an appropriation of funds for the purpose of conducting immediate research.

3. The Geological Survey continue studies of the water consumption of phreatophytes.

4. Interior agencies responsible for the administration of land continue a program of observation to determine the extent of salt cedar in the Missouri Basin.

5. Determine whether the Department of Agriculture technicians responsible for farm planning are recommending the use of salt cedar in shelter belts, and requesting that the potential distribution of this plant be considered in recommending plans.

/s/ Harrell F. Mosbaugh

cc: Field Committee Circulation
Mr. T. W. Robinson, Chairman
Phreatophyte Subcommittee
Pacific Southwest Federal Inter-Agency Technical Committee
Geological Survey Water Resources Division
4 Homewood Place
Menlo Park, California

My dear Mr. Robinson:

Please refer to your letter of January 14, 1955, addressed to Mr. Curtis Bowser of this office inquiring about the article "History of Introduction of Salt Cedar". The subject paper was completed last year and except for minor refinements now is ready for publication. The manner in which the article will be released has not been decided, but incorporation of the material with a forthcoming report on salt cedar control investigations conducted jointly with the Department of Agriculture, or its release through a scientific journal are being considered. In any event, reprint copies of the article will be furnished to you at the first opportunity.

We are appreciative of the action taken by the phreatophyte subcommittee in urging appointment of Mr. Bowser as a Bureau of Reclamation representative on the subcommittee. However, reduction of personnel in this office has resulted in additional work being assigned to the staff members and I consider it undesirable, at least during this year, to suggest that Mr. Bowser assume additional responsibilities.

Sincerely yours,

/s/ E. G. Nielsen
/t/ E. G. NIELSEN
Regional Director
Mr. H. C. Fletcher  
107 Agriculture Bldg.  
Arizona State College  
Tempe, Arizona  

Dear Mr. Fletcher:

Regarding our conversation concerning the housing and servicing of the photographs and slides for the phreatophyte collection, the Matthews Library has satisfactory facilities and staff to undertake and implement the housing and distribution of these materials as needed. You can count on our total cooperation in this endeavor.

Sincerely yours,

/s/ Harold Walter Batchelor  
/t/ HAROLD WALTER BATCHELOR  
Librarian, and Head  
Dept. of Library Science  
Matthews Library
History and Work of Phreatophyte Subcommittee

The Phreatophyte Subcommittee was established by the Pacific Southwest Federal Inter-Agency Technical Committee at its ninth meeting in Ogden, Utah on September 27, 1950, on recommendation of the Colorado River-Great Basin Field Committee, Department of Interior for the purpose of dealing with phreatophyte problems. The membership of the committee, consisting of a representative from the Geological Survey, and the Bureau of Reclamation of the Department of the Interior, the Soil Conservation Service, the Forest Service, and the Bureau of Plant Industry, the Department of Agriculture, and the South Pacific Division, Corps of Engineers of the U.S. Army, were appointed by the Chairman of PSFIACT at its tenth meeting. Later, a representative from the Fish and Wildlife Service and Bureau of Indian Affairs of the Department of the Interior were appointed, bringing the membership to eight.

The subcommittee assignments were to correlate agency activities, on the phreatophyte problem and particularly the research phases of phreatophyte control work, and to keep the parent committee currently informed of such activities.

The subcommittee, through its minutes and reports to the parent committee in the course of 18 meetings, has reported on the following agency activities: Phreatophyte control methods, experimental spraying with chemicals, and costs at various refuges by the Fish and Wildlife Service; phreatophyte control and maintenance methods of the United States and Mexican Sections of the International Boundary and Water Commission, above and below El Paso, Texas; Evaluation of results of phreatophyte control of test areas on the Rio Grande and Pecos Rivers in New Mexico and the Humboldt River in Nevada by the Bureau of Reclamation; Results of spraying with herbicides in saltcedar eradication tests in Arizona, September 1951 to May 1954 by the Bureau of Plant Industry; Phreatophyte problem in Nevada, and the estimate of the areas of phreatophytes in Southern California and use of water by them, by the Geological Survey; Salvage of evapo-transpiration losses by native vegetation in Southern California by Soil Conservation Service; Prevention and eradication of investation of reservoir delta areas by noxious plants and replacement of ground cover by the Corps of Engineers; Pathological studies involving parasites on saltcedar, conducted at the University of Arizona.

The subcommittee sponsored a symposium on phreatophytes at the Thirty-Second Annual Meeting of the American Geophysical Union on May 1, 1951. The symposium consisting of six papers was published in the Transactions, AGU, Vol. 33, No. 1, February 1952. As a result of the
symposium, subcommittee members have received many requests from organizations for information, articles, papers or talks dealing with the phreatophyte problem. Among these were the Association of Western State Engineers and the National Reclamation Association. Two papers dealing with phases of the phreatophyte problem were given abroad (Rome) in 1954 by a subcommittee member. A chapter on phreatophytes prepared for the Department of Agriculture Yearbook for 1955 by a member, was reviewed and commented on by the subcommittee.

The subcommittee proposed a paper in which all available data and information on phreatophytes would be assembled and brought up-to-date. The preparation of the paper was undertaken by the Geological Survey representative and the manuscript is essentially complete and ready for transmittal to the editor for review. It will be published by the Geological Survey as a Water Supply Paper.

The subcommittee has arranged with the librarian of Arizona State College, Tempe, Arizona for the use of the library and its facilities as a depository for the housing of a phreatophyte library of photographs and slides. This photographic library will be available to the public on the same basis as other library material.

The subcommittee, by a letter through the Chairman, RSFIATC, to the Chairman, FIARBC, requested support for a research and action program commensurate with the serious problem presented by phreatophytes, particularly in the Southwest. The request was referred to the field committees, bureaus, and agencies of the Departments of Agriculture and Interior for review and recommended programs.

It is suggested that the subcommittee continue its past activities of collecting information, correlating activities and disseminating information concerning phreatophytes. In addition, it is suggested that the subcommittee include in its activities the subject of evaporation. Both evaporation and transpiration freely respond to changes in temperature, wind movement and humidity, so that evaporation from water may, under certain conditions, be used as an index of evaporation losses in areas where phreatophytes have access to an ample supply of ground water. The subcommittee has proposed the preparation of a map by states showing the important areas of phreatophyte growth, particularly in the Southwest.

Phreatophytes, particularly saltcedar, because of its dense growth, frequently chokes the normal overflow channels and flood plains of rivers so that in times of flood, the velocity of the water is reduced. When, as is quite common, the sediment load is high, there is deposition in the area of infestation. Under such conditions, the phreatophyte and sedimentation subcommittees have common interests, and it is suggested that they combine their activities in such instances.
Memorandum

To: All members Phreatophyte Subcommittee

From: Interim Chairman

Subject: Minutes of 55-1 Meeting

Attached is a copy of the Minutes of the 55-1 Meeting of the Phreatophyte Subcommittee. A copy has also been furnished the parent committee.

As most of you are doubtless aware, the 55-1 meeting of the PSFIATC was an executive session held in San Francisco, California on March 30. At this meeting, the PSFIATC was dissolved and replaced by the PSIAC (Pacific Southwest Inter-Agency Committee) under a new charter. The principal change appears to be that the states of the area covered by the committee will be invited to become members of the PSIAC.

The first meeting of PSIAC on June 15, 1955 at Reno, Nevada will be an executive session at which the states will be represented and will involve a frank discussion of the committee’s purpose and future activities. There will be no meeting of the subcommittees. For this meeting, the chairman of the subcommittees have been appointed as interim chairmen, and requested to prepare a brief summary statement on the history and accomplishments of their respective subcommittees and suggestions for its future activities. It is also requested that the interim chairmen be present to give a verbal report similar to the prepared statement.

Any suggestions or ideas that you may have concerning the future activities of the phreatophyte subcommittee will be most welcome. I expect to include the subject of evaporation as discussed in our 55-1 meeting. The chairmen of PSTAC requests that the prepared statement be submitted to him not later than May 25, 1955. In order that I may comply with his request, will you send me your suggestions as soon as possible.

T. W. Robinson, Interim Chairman
Phreatophyte Subcommittee
Pacific Southwest Inter-Agency Committee