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SOIL CONSERVATION LITERATURE
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Compiled By The Library Staff Of The Soil Conservation Service
From Publications Received In The
United States Department of Agriculture Library, Washington, D.C.

The publications listed herein may in most cases be borrowed from the Service Library by members of the Washington and field staffs. For convenience Library call numbers are given after each book and pamphlet entry. These should be included when requesting loans.

TO OUR READERS

With this issue we inaugurate the first of a series of bi-monthly compilations which we hope will prove to be a useful tool. It represents an effort to organize into readily accessible form references to data and knowledge on soil conservation and related subjects selected from currently published material.

Although the Library maintains a card index to all published material of interest, it is obviously not possible to record everything in a list such as this. It will, therefore, be our policy to include only what seem to be the more important references to periodical articles, books and pamphlets. Descriptive notes and abstracts will accompany most of the references and thus assist the reader to decide whether or not he needs to read the article or publication.

The success of this undertaking will be measured by the use made of it, so suggestions for material to be included will be welcomed.

Mildred Benton

Mildred Benton
Librarian

PERIODICAL ARTICLES

Erosion

The purposes of roadside improvement. Pub. Works 67(8):23-24
August 1936.

Lowered maintenance costs should be considered.

"Erosion is one of the greatest causes of maintenance costs... A rim or berm ditch which is needed in certain cuts to protect the back slope against erosion, will pay many times over through the season for the cost of constructing it... Side ditches properly lined and protected are no longer subject to erosion and the resultant constant repair."

Included is an illustration of bank stabilization and planting in Massachusetts.

Erosion (cont'd)

Results of erosion. Clemson Agr.Col.School of Voc. Educ.Agr.Educ.,Dept.of Agr.Educ.12(8-9):61-140. illus. Feb.-May,1936.

"References":pp. 139-140.

"The findings of the Federal Soil Conservation Experiment Stations and the North Carolina Agricultural Experiment Station make up an important part of this bulletin."

The bulletin was prepared in an effort "to stimulate active participation on the part of students of vocational agriculture in determining the degree and extent of erosion on individual farms."

Mexler, H. A note on dust in the atmosphere. Amer. Met.Soc.Bull. 17(10): 303-305. October 1936.

"If measurements of the radiation intensity can be taken in certain narrow spectral regions, then it is possible... to determine both the dust and water-vapor contents. If a sufficient number of stations taking such measurements could be established along the rain trajectories of air masses in this country, then it would be possible to determine how rapidly the air acquires dust and water vapor; and consequently to estimate the rate of evaporation of water vapor from the earth and the rate of wind erosion of the soil."

Erosion. Economic Aspects

Craddock, F.G. The effects of soil type and erosion on certain factors affecting costs and returns in producing tobacco in Pittsylvania county, Virginia,1933. Va.Polytech.Inst. Va.Farm Econ.no.36,pages 567-569. August 1936.

Data for 380 farms in the Banister River soil erosion service area for the farm year 1933 furnish the basis for this report.

It is shown that "the yield per acre increased consistently as the amount of erosion decreased...there was an upward trend in the price received for the tobacco as the amount of erosion decreased."

There were four important soil types: Cecil, Madison, Appling, and Granville. Appling showed least erosion and Granville a close second. Most serious erosion occurred in Madison soils.

Brandt, Karl. Potentialities of agricultural reform in the South. Social Research 5(4): 454-458. November 1936.

"Soil, topography and climate are factors operating toward a shift of the center of gravity of cotton culture.

"The situation would be desperate if the South had to go on as before, producing cotton on eroded soils, but this is by no means necessary. A shift to mixed farming will make possible not only a utilization of these soils but their gradual repair.

"A fundamental change of the legal status of the majority of the farm population will clear the way toward the necessary reshaping of farming itself into a rotation system with diversified crops and animal husbandry. Such a change is the only satisfactory solution for the problem of social security for the farmer in the South."

The author suggests that the necessary reform be brought about by the organization of experimental corporations." A number of such corporations...will probably solve within five years such important problems as the optimum size of farms in special regions, preferable rotation of crops, the size of animal production and the bearable indebtedness and rent."

Soil conservation and social reconstruction; the social implications of the problems of soil erosion control are deep and far-reaching. Save Our Soil 1(3):1-2. April 1936.

Indicates that "conservation, by its very nature, is a public problem, not a private one, and it is a problem that demands for its successful solution a distinct shift in our fundamental, social and economic concepts."

Erosion Control. Foreign Countries.

Fletcher, S.W. Glimpses of rural Europe. The valley of the Rhine. Penn.Farmer 115(11): 287. Nov.21,1936.

Describes "unique agriculture" in the Rhine valley.

"At points the river gorge rises 1,000 feet above the river, with a slope of 45 degrees, or steeper. Through the centuries the Germans have gradually transformed the river gorge into a garden. The face of the cliff on either side, has been chiseled into a series of narrow ledges, or terraces. Soil has been brought up from below...and laid on these shelves about a foot deep. Two inches of shale have been spread over the surface to favor the absorption of rain and to prevent erosion. Grape vines have been planted three or four feet apart. They stretch upward tier on tier,

Erosion Control. Foreign Countries(cont'd)

Fletcher, J.W. (cont'd)

being held by brick or stone walls, cunningly laid to provide drainage without erosion."

Gillett, S. Report on a visit to southern India and Java. Part II. - The coffee industry of Java(N.E.I.) Conclusions and recommendations. East African Agr.Jour. 2(2): 149-163. September 1956.

Planting: pp. 150-153.

The Dutch planter in Java considers "first and foremost, the preparation of the land" when planting coffee. "Without exception, some suitable method is taken to prevent soil erosion. The method adopted depends according to circumstances, but whatever system is carried out it may be relied upon to be 100 per cent efficient... *Leucaena glauca*... is often used on the sides of terraces to prevent washaways. This is planted either as soon as the land is terraced or at the same time as the coffee is planted... The cost of preparation, including a special method of terracing, was stated to be 70 guilders per bouw(Sh.07 per acre approximately)

"There still appears some doubt as to the advisability of the use of cover crops...The use of indigenous weeds rather than introduced leguminous crops is preferred."

Three illustrations of terraces are given.

Glover, H.M. The Hosiarpur siwaliks from the air. Indian Forester 62(6): 330-333, illus. June 1936.

Aerial views show attempts at erosion control in the Punjab by use of *Vitex negundo* and by watt bandi.

It is said that counter-erosion and reclamation of land is a definite part of the Punjab Rural Reconstruction program. "Fortunately the steps taken to check erosion by means of the exclusion of goats are having their effect... The area can never be completely restored but there is every prospect of training the chos and restricting their area.

Reference is made to the Chos act which provides for the closing of grazing grounds.

Griffiths, R.L. Wind erosion of soils in the agricultural areas. Jour.Dept.Agr.So.Aust. 40(1): 25-40. illus. August 1936.

References: p.40.

Discusses experience of other countries with erosion,
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Erosion Control. Foreign Countries (cont'd)

Griffiths, R.L. (cont'd)

causes of erosion, means of control, importance of rotation cropping to check soil erosion, control of wandering sand dunes with sand, binding grasses, growing trees for wind breaks, importance of controlled grazing and cultivation practices to control erosion in South Australia.

Gussak, V.B. Soil erosion survey of Kokhi Tung state farm. Sovetsk. Subtrop.no.4. pages 23-40. illus. 1936.

Results of the first soil erosion survey to be included in systematic research in the USSR.

Article in Russian.

English summary.

Hamilton, A.P.F. Siwalik erosion. Indian Forester 62(6): 375-387. June 1936.

"The paper begins with a description of the role of mountains and forests as agents for the supply and distribution of water. A brief discussion of the geology of the Siwalik range (foot-hills of the Himalaya) follows, and the rest of the paper deals specifically with erosion in the Siwaliks of the Hoshiarpur district in the Punjab."

History of the Hoshiarpur chos, damage caused and suggestions for relief by planting trees and grass, thus gradually causing the chos to become canalized between tree-lined banks.

Oosthuizen, H.A. Catchment areas and safety of soil-erosion works. Farming So. Africa 11(125): 317-318. August 1936.

It is pointed out that the South African campaign against soil erosion is dependent upon the efficacy of the measures taken for controlling flood-waters to which such works are exposed.

Demonstrates in a popular way how the maximum discharge of a catchment area may be determined approximately in a practical manner.

Park, Malcolm. The soil erosion questionnaire - 1935. Trop. Agr. [Ceylon] 87(2): 106-117. August 1936.

Includes questionnaire sent to about 1,200 estates in Ceylon to find out what progress with measure of
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Erosion Control. Foreign Countries (cont'd)

Park, Malcolm (cont'd)

soil conservation had been made since the publication of the Report of the Soil Erosion Committee; and tabulation of results.

It is noted that increasing attention is being given to soil conserving measures, especially the introduction of cover crops.

Stockdale, F.A. Soil erosion. Trop.Agr.[Ceylon] 87 (2): 92 - 98. August 1936.

Summarizes efforts made in the Empire during the past five years to deal with the problem.

Ceylon - efforts have been made to arouse interest in amount of soil lost since 1873. Determined effort to arouse public and "planting" interest begun in 1923.

In Java it is provided that "forest lands can only be opened in economic crops if adequate contour drains are established and terraces made before planting begins."

In Tanganyika experiments in terracing and anti-erosion methods have been started and contour planting is spreading where ridge cultivations have been started.

In Nyassaland various measures against soil erosion have been adopted in the cultivations on undulating lands, and for tobacco and cotton lands the establishment of Mangun terraces is becoming general where ploughing is practised. This system is also commonly adopted in Southern Rhodesia.

In Basutoland, soil erosion is being combated by the creation of a number of large shallow reservoirs in which flood waters from the hill sides can be collected.

In the Union of South Africa anti-erosion work consists mainly of making dry stone walls and grass-covered banks along the contours.

Warren, W.D.M. Effect of forests on erosion, floods, climate and rainfall and on irrigation experiments. Indian Forester 62(7): 414-417, illus. July 1936.

Summary of lecture delivered at the Science College, Patna University.

"Mr. Warren, towards the end of his lecture, described an interesting irrigation experiment recently initiated by the Government of Bihar and Orissa. The aim of the Department is to improve the condition of

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Erosion Control, Foreign Countries (cont'd)

Warren, W.D.M. (cont'd)

the forests under its control. These improvements are doubly attractive, if, in addition to being good financial investments, they fit in with the Orissa Floods Committee's recommendations for lessening flood damage and erosion. Irrigation does this.

"Level earthwork, contour channels with small masonry bundhs at stream crossings, are constructed on hillsides to arrest the run off of water diverting it along the face of the hill, where, except for excess water escaping it, it can only get away by percolating down through the soil past the roots of trees. Three and a half miles of channels have been dug in the last three years at Bamiaburu, Kolham division, and already there is a big improvement in the growth and condition of the forests."

Floods

Barrows, H.M. After the floods. Amer. Forests 42(10): 447-448, 484-485. October 1936.

Contends that existing knowledge is not sufficient to hold either deforestation or soil erosion primarily responsible for major floods. Regards as premature the program of the Forest Service, announced July 26, 1936, which calls for the public acquisition of a vast area of land in the eastern states, and the rapid restoration of forest cover upon it, as a measure 'aimed primarily at flood prevention.'

Says attention to control of little streams has focused attention on a whole train of connected problems but has contributed to the development of mistaken ideas with respect to flood control.

Criticizes the Flood Control Act approved June 22, 1936.

Gutmann, I. New cloudburst flood formula. A proposed discharge formula for limited areas that fits well with runoff records of phenomenal floods in this country and abroad. Engin. News-Rec. 117(14): 474-475. Oct. 1, 1936.

Formula is primarily for watersheds from about 1 to 70 sq. mi. in area.

Symposium on floods features N.F.W.A. meeting. Public health aspects and hydrology of the 1936 floods re-
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Floods (cont'd)

Symposium on floods...(cont'd)

ceived major attention at four-day convention in New York City devoted to water works problems. Engin. News-Rec. 117(14): 481-483. Oct.1,1936.

Summary of papers presented at 55th annual convention of New England Water Works Association, in New York City, September 22-25.

Malcolm Pirnie reported on "the extensive study of ground-water conditions in Florida, from which it was determined that in this locality a rainfall of less than 0.3 in. contributed nothing to run-off and ground water replenishment, but was entirely lost through evaporation. On the assumption that a precipitation of a least 0.3 in. is required in a single rain, more than one-half of the rain during the drought season was therefore unproductive as a source of water supply."

Gullies

Mitchell, R.H. Some observations on slumping and gully formation. Science 84(2184): 420. Nov.6,1936.

Report of observations made on slippage and gully-ing of Flag Pole Hill on the campus of Muskingum College in New Concord, Ohio after a severe rain storm, October 9,1933.

170 cubic feet of material moved 3 feet down the slope during and just after this one rain.

Plant Cover

Putler, Eugene. Soil-saving methods prove worth. Prog. Farmer and So.Ruralist(Tex.ed.) 52(1): 10,14. illus. January 1937.

Soil and water conservation demonstrations in Texas.

Special mention is made of the use of Hubam clover. Blackland farmers "are confronted with a real problem in trying to grow legumes on land infected with root rot...Hubam may be the legume they have been looking for."

Cates, J.S. Triumph of the orphan. Country Cent.106 (11): 13, 32-34. November 1936.

The story of *Lespedeza sericea*, a new crop plant of the forage group which "offers to banish poor land in a substantial area of America."

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Plant Cover (cont'd)

Gates, J.S. (cont'd)

It is pointed out that the Soil Conservation Service used 50,000 pounds of sericea seed last year for seeding on badly eroded areas.

Goss, W.L. Mustards used as cover crops. Calif. Dept. Agr. Bull. 25(3): 541-543. illus. Jly/Aug/Sept. 1956.

Plant descriptions are based on trial plantings of the various mustards offered as cover crops for California orchards.

Recommended plants. Amer. Nurseryman 64(9): 10-11. Nov. 1, 1956.

"Jasminum Peesianum has promise of becoming a good, medium-low ground cover plant, which can be used for holding banks. It is quite hardy in Maryland, and the branches root heavily wherever a joint touches the ground. It grows with an arching habit to a little less than three feet and produces pink or deep rose, fragrant flowers."

Reforestation

Kirsch, Prof. On reforestation of the dust belt in the midwest. Bull. Amer. Met. Soc. 17(11): 353-354. November 1956.

Excerpts from a letter of Professor Kirsch, Radium Institute, Vienna to Prof. A.C. Lane, Cambridge, Mass.

"Of interest for the suggested use of modern hydrodynamics to a climatological problem."

Rodent Control

Verhies, C.T. Rodents and conservation. Control projects provide easy but dubious ways to spend money. Nature Mag. 28(6): 563-565, 379. illus. December 1956.

"There has been, on some of the erosion projects, a tendency to damn, convict, and sentence the rodents to death on a large scale on areas to be worked for erosion control... Surely in an area in which burrowing rodents are so important in the loosening up and aeration of the soil - as in our earthwormless, arid

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Rodent Control (cont'd)

Vorhies, C.T. (cont'd)

southwest- the little animals deserve to have the possible benefits they confer on the soil carefully balanced against the possible effects of increasing erosion. It may be fairly questioned whether rodents, by and large, are important in causing erosion directly."

Silt

Stevens, J.C. The silt problem. Amer.Soc.Civ.Engin, Proc. 62(8,part 2): 207-288. October 1936.

Paper no.1927.

List of references: pp.247-248.

Includes discussions by Messrs. H.G.Nickle, E.W. Lane, F.C.Bonner, M.P.O'Brien, H.S.Blaney, V.W. Waggoner, P.R.R.Bisschop, Herman Stabler, N.C.Gorver and J.C. Stevens.

"All the basic data that the writer could secure on the silting of reservoirs, where actual capacity surveys have been made to determine the extent of silting, are contained in this paper. Remedial measures for silt elimination are presented and discussed. A table contains a brief of all data on the silt transported by the streams of the world. The physical laws of silt transportation are outlined with pertinent discussion. The control of silt in canals, reservoirs, and on water-sheds is then considered. The paper closes with data and discussion on the origin of silt."

Societies

The soil science society of America. Jour.Amer.Soc. Agron. 28(12): 1056-1060. December 1936.

The American Soil Survey Association and the Soils Section of the American Society of Agronomy merged at their annual meeting held in Washington, D.C., November 17 to 20 to form the Soil Science Society of America.

Plans for 1937 meeting, officers, and constitution and by-laws are given.

Brief notice of organization and list of officers also in Science 85(2192): 13. Jan.1,1937.

Soil Fertility

Oberholzer, P.C.J. The decomposition of organic matter in relation to soil fertility in arid and semi-arid regions. Soil Sci.42(5): 359-379. November 1936.

Percolation studies and influence of moisture on the decomposition of organic matter are included.

Soil Management

Stauffer, R.S. Influence of soil management on some physical properties of a soil. Jour.Amer.Soc.Agron. 28(11): 900-906. November 1936.

Literature cited: pp.905-906.

Studies at Illinois agricultural experiment station show that "soil on which poor cropping systems have been followed are much more subject to destruction by erosion than soils on which good systems have been followed... Results indicate that good physical condition of a soil can be maintained if good systems of cropping and management are followed."

Streamflow

Bates, C.G. The forest influence on streamflow under divergent conditions. Jour.Forestry 34(11): 961-969. November 1936.

"This question is treated for the condition of hilly southwestern Wisconsin and adjacent Minnesota, by comparing various measures with the standards set up by the Wagon Wheel Gap streamflow experiment in Colorado. Strangely, despite considerable differences in climate and marked differences in soil conditions, it is shown that forest and other vegetation take care of the water situations about equally well in the two regions and that it is only when bared soils enter into the picture that serious consequences are felt."

Tennessee Valley Authority

Richards, E.C.M. Forestry and floods in the Tennessee Valley. Amer.Forests 42(11): November 1936.

What the T.V.A. is doing in its united attack by engineers, agriculturists and foresters on the water-

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Tennessee Valley Authority (cont'd)

Richards, E.C.M. (cont'd)

flow control problem.

Traces actual development of best techniques for stopping erosion through reforestation.

Mentions the importance of the opportunity for demonstration and development of forestry knowledge as it relates to control over the run-off of water and soil erosion prevention presented by the creation of Morris Lake Forest of 117,000 acres.

River and region. Development of the Tennessee river for navigation, water conservation, flood control and power involves many regional problems, including cover-cropping and forestation to check erosional silting, and development of recreational and mineral resources. Engin.News-Rec. 117(26): 897-901. illus. Dec.24,1936.

The Tennessee valley experiment - IV.

"The off-the-river physical accomplishments of the Tennessee Valley Authority to date have been confined mainly to widespread demonstration and acceptance of methods of farming which reduce soil erosion to a negligible amount, and to the distribution and sale of electricity generated by its water-power plants at Wilson, Morris and Wheeler dams. The agricultural program has been impressive and the results effective."

Terracing. Costs

Ward, G.H. The cost of terracing farm land cooperatively, Jour.Farm Econ.18(4): 765-768. November 1936.

Cooperative terracing associations in Virginia have brought the cost of terracing down to an average of \$1.44.

Water Conservation

Mundt, K.E. Let's appraise conservation. Successful Farming. 34(11): 16,30-32. November 1936.

Points out that there is money in conservation, especially water conservation.

Suggests damming watercourses to make farm ponds and raising fish for revenue; also developing muskrat marshes in connection with the ponds.

Reports need for paying attention to water conservation in building highways.

Wildlife Management

Hershey, J.W. Balancing a wildlife program. Some plants benefit both wild and farm animals. Amer. Wildlife 25(5): 71,78. September-October 1936.

Forestry offers one means of soil conservation, and in forestry, tree crops are of major importance. Various bushes and trees of benefit to the soil as well as in offering food are listed.

Leopold, Aldo. Farm game management in Silesia. Here farm practice and game management are dovetailed. Amer. Wildlife 25(5): 67-68, 74-76. September-October 1936.

Describes the romise system used to advantage in Silesia.

Taylor, W.P. A national wildlife survey. A biological inventory of national organic resources is needed. Amer. Wildlife 25(5): 69,77. September-October 1936.

Suggests that the government undertake a wildlife survey which "would indicate, more definitely than we know them at present, the outstanding needs for cover control; for regulating numbers of potential pests; and for wildlife conservation and restoration."

Taylor, W.P. The principle of "diversification" in the wildlife field. Science 84(2181): 350-351. Oct. 16, 1936.

Urges the maintenance of land under as nearly as possible natural conditions. Examines the present situation which has brought about a deterioration of the soil and decline of wildlife, then outlines a picture as it might appear in a Texas pine forest with climate, soil, animal and plant population operating as a balanced enterprise.

It is pointed out that such a balance is the equivalent, in the field of wildlife and natural resources management, of diversified farming in agriculture.

Yield Studies

Ullman, Cornelius. Why farm eroded soil? U.S. Soil (cont'd)

Yield Studies (cont'd)

Ullman, Cornelius (cont'd)

Conserv. Serv. Soil Conserv. Digest 3(2): 2-4. November 1936.

Yield studies conducted by the Soil Conservation Service in the Las Posas Project during the past cropping season (1935-36) indicate lower lima bean yields on soils suffering from soil erosion.

A reduction of 329 pounds per acre was indicated between soils of moderately severe and very severe degrees of erosion.

NOTES AND ABSTRACTS

Conservation

Parkins, A.E. Our natural resources and their conservation. 650 pp. New York, J. Wiley & sons, inc., 1936. (279 P22)

Each chapter is by a specialist in his particular field.

Subjects covered are general aspects of conservation in America; problems of the conservation of land, forests, water and water power, mineral resources, wild life; and methods of handling these problems by local, state or national action.

Contributors from the Soil Conservation Service are as follows: Soil erosion and its prevention, by H.H. Bennett, pp.65-100; Conservation of natural resources and the manufacturing industry, by H.H. Strong, pp. 475-485.

Erosion

Ayres, Q.C. Soil erosion and its control. 365 pp. New York and London, McGraw-Hill book company, inc., 1936. (56.7 Ay7)

Bibliography: pp.341-352.

Brings together in one volume data on the nature of erosion, causes of exhaustive erosion and the various ways in which excessive rates may be controlled.

Over half of the book is devoted to detailed directions on strip farming tree planting and care, and on the design and construction of terraces, ditches and dams.

Erosion (cont'd)

Burges, A.E. Soil erosion control. A practical exposition of the new science of soil conservation for students, farmers and the general public. 187 pp. illus. Atlanta, Ga. Turner E. Smith & Co., 1936 (56.7 B99)

According to the author's preface, "not until now has there been available to the public any book in which the bewildering mass of erosion data has been reduced to its essentials. This volume presents erosion control as an organized whole."

Briefly and clearly, the topics are presented in textbook style.

There is a glossary of terms on pages 181-184.

Suggestions for field practice are appended to the chapters.

Chase, Stuart. Rich land, poor land; a study of waste in the natural resources of America. 361 pp., illus. New York, McGraw-Hill book company, inc. [1936] (279 C38)

Selected bibliography: pp. 351-352.

With a popular style the author presents a birdseye view of America before the coming of the white man, then shifts the scene to 1936 and a land far different due to the loss of soil, water and mineral deposit.

He discusses the causes and effects of this condition and suggests remedies in the light of published reports by recognized authorities.

Coyle, D.C. Waste, the fight to save America. 96 pp. Indianapolis, The Bobbs-Merrill co., [c1936] (279 C83)

Dramatizes the economic and social waste which characterizes present day America. Popularizes technical engineering problems in chapters on mud, dust, water, land and power.

The book is an effort to arouse Americans so that no one may remain indifferent to such problems as soil erosion, flood control and conservation of natural resources.

Flood Control

Ecological society of America. The scientific aspects of flood control; symposium sponsored by the Ecological society of America and the American association for the advancement of science, Rochester, N.Y. June 18, 1936. By F.A. Silcox, W.C. Lowdermilk and Morris L. Cooke, with an introduction by W.S. Cooper. 47 pp. illus. New York, The Science Press [1936] (American

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Flood Control (Cont'd)

Ecological society... (cont'd)

association for the advancement of science. Occasional publications No.3) (500 AmS40 no.3)

Issued as Supplement to Science, vol.64, Oct.1936.

"References" at end of articles.

Contents: 1. Introduction, by W.S.Cooper; 2. Forests and flood control, by F.A.Silcox; 3. Agricultural land use and flood control, by W.C.Lowdermilk; 4. On the relations of engineering science to flood control, by F.L. Cooke.

Great Plains

Goodrich, Carter, Allin B.W., Thornthwaite, C.W. and others. Migration and economic opportunity; the report of the study of population redistribution. 763 pp. Philadelphia, University of Pennsylvania press; London, H.Milford, Oxford university press, 1936. (280.12 G62)

Partial contents: Chap.V. The Great Plains, by C.W. Thornthwaite.

The following topics are discussed: The physical site; History of settlement including mention of the advancing frontier, dry farming and agricultural mechanization; Climatic hazards and crop production, including rainfall records, shifting climatic boundaries; Economic implications of crop production, including the influence of climate on crops, income from wheat production in the Great Plains and agricultural over-expansion and wind erosion. The chapter is concluded with a discussion of population prospects in the Great Plains.

Meetings

American geophysical union. Transactions of the...seventeenth annual meeting, April 30; May 1,2,1936, Washington, D.C.; West coast meeting, January 31 and February 1,1936, Pasadena, California. Part II pages 262-562. Washington, D.C., National research council 1936. (330.9 AmS)

Reports and papers, Section of hydrology, pages 265-528. Partial contents: Report of the committee on snow, 1935-36; Report of the committee on evaporation; Report of the committee on rainfall and run-off; Symposium on fluctuations of ground-water level; Notes on the trans-
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Meetings (cont'd)

American geophysical... (cont'd)

portation of silt by streams, by H.P. O'Brien; The twin problem of erosion and flood control, by H.M. Eakin; United States Geological Survey records of suspended and dissolved matter in surface waters, by N.C. Grover.

Western Interstate Snow Survey Conference, pages 529-562. Partial contents: Precipitation surveys for anticipating water-supplies, by H.K. Burton and J.C. Alter; The effect of soil-absorption on snow-survey forecasting of stream-flow, by M.P. Boardman.

India. Board of agriculture and animal husbandry. Crops and soils wing. Proceedings of the first meeting... held at Delhi from the 25th February to the 2nd March, 1955. 577 pp. New Delhi, Government of India press, 1956 (22 In233)

Report of committee on subject no. III - Soil amelioration: pp. 25-30. The committee met to consider (a) advances already made in the control and prevention of soil erosion (b) recent advances in alkali land reclamation and the amelioration by cropping, manuring or irrigation of soils with an abnormally high FM (c) the effect of river silt on soils.

Appendix VI, pp. 259-272 contains the following articles of interest: S.S. Salimath on the advance made in the control and prevention of soil erosion by bunding in the southern division of the Bombay Presidency and points for further study of the problem; J.P. Trivedi on advances already made in the control and prevention of soil erosion and the steps to be taken for the further study of the problem in the Bombay Presidency; similar reports on the same subject by P.V. Raghiah, K. Paramaswaran Pillai, K.R. Narayana, P.E. Landor, V.K. Tamhane, R.G. Allan.

Water Conservation

Interstate conference on the Red River of the North drainage basin. Report of the third... conference... sponsored by the State planning boards of Minnesota, North Dakota and South Dakota, St. Paul, Minnesota, July 8, 1936. 65.1., mimeogr. [St. Paul, Minn.] 1936. (292.9 In8)

First revision, July 30, 1936.

The summary report of the water plan for the Red
(cont'd)

Water Conservation (cont'd)

Interstate conference... (cont'd)

River of the North is given as follows: "An adequately developed water plan, on a long time basis for the Red River of the North must involve the reorganization of the handling of the water supply. The primary objective is the development of a dependable streamflow during the dry months of the year in an amount ample for urban water supply and for the dilution of wastes. The attainment of this objective will involve the storage of water in headwater areas, the transportation of the water as regulated stream flow in accordance with a pre-determined program and the improvement of stream channels to minimize water losses. Such a plan will, in addition to the primary objective, make feasible the construction of small service reservoirs adjacent to the urban centers, the correction of flood flows, the improvement of lakes and artificial reservoirs for the conservation of wild life and recreation, the improved and increased operation of hydro-electric power plants, and will facilitate land drainage."

The report is arranged in five parts: I. Physical characteristics. II. Economic conditions and trends. III. Water problems. IV. A co-ordinated plan of water development. V. A recommended program of projects.

U.S. GOVERNMENT PUBLICATIONS

Darling, J.H. Game management on the farm. U.S. Dept. Agr. Farmers' Bull. 1759. 22 pp., illus. 1936. (1 Ag84F)

An outline of the general principles and the advantages of game management on the farm. It is pointed out that improvement for the conservation and increase of game may go hand in hand with conservation of the soil.

Bakin, F.H. Silting of reservoirs. U.S. Dept. Agr. Tech. Bull. 524. 142 pp., illus. 1936 (1 Ag84F)

Literature cited: p.127.

Discusses previous investigations of 25 American reservoirs; surveys by the Soil Conservation Service in 1934-1935 and reconnaissance investigations 1934-35.

This is the initial report of the project undertaken by the Soil Conservation Service with respect to reduction of storage by silting. The work, so far, covers represen-

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Eakin, H.M. (cont'd)

tative reservoirs in the southeastern, south central and southwestern type areas.

Data "show that silting of reservoirs is a practical problem... wherever accelerated erosion is in force." It appears "that the problem of protection of reservoirs from the menace of erosion goes hand in hand with that of saving farm and range lands from impairment and destruction."

Fulfs, J.L. Blue Grama grass for erosion control and range reseeding in the Great Plains and a method of obtaining seed in large lots. U.S. Dept. Agr. Circ. 402. 8pp., illus. 1936. (1 Ag84C)

Literature cited: pp.7-8.

Early observations and research; harvesting, threshing trials, 1934 and 1935; cost of seed.

Puerto Rico. Reconstruction administration. The need for federal aid in Puerto Rico. The purposes of the Puerto Rico reconstruction administration. 6pp. Washington, U.S. Govt. print. off., 1936. (173.2 P962)

Puerto Rico is predominantly agricultural. For decades erosion under tropical rains has gone unchecked. Absentee ownership has driven those formerly dependent upon the soil to the already congested urban areas which are lacking in proper and adequate housing facilities. Consequently, it is of the utmost importance to encourage the return to the rural areas of the farmers and farm workers by restoring the farm lands to them."

The amount of \$994,140 has been allocated for the reforestation and forestation project. "This project program involves one (1) approved official project for reforestation, forestation, and prevention of soil erosion, including the purchase of 20,000 acres of timber lands, construction of forest roads and the construction and maintenance of reconstruction camps in connection therewith."

Uhland, R.E. The use of bluegrass sod in the control of soil erosion. U.S. Dept. Agr. Farmers' Bull. 1760. 12pp., illus. 1936 (1 Ag84F)

Supersedes Leaflet 82, Controlling Small Gullies by Bluegrass Sod.

Designed to familiarize farmers with the various ways in which bluegrass may be used as a means of gully control.

Information is included relative to use of sod in bags, sod check dams, sod headers, seeding and sodding terraces

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Uhland, R.E. (cont'd)
outlets and grassed waterways.

U.S. Bureau of agricultural engineering. Report of the Chief... 1936. 24 pp. Washington, U.S. Govt. print. off., 1936. (1 En3)

Evaporation studies: pp.5-6.

Silt in streams: p.6.

Run-off studies: p.8.

Storage of water underground: p.7

U.S. Department of agriculture. Yearbook of agriculture. 1936. 1139 pp., illus. Washington, U.S. Govt. print. off., 1936. (1 Ag84Y)

Soil conservation: pp.59-62.

U.S. Bureau of biological survey. Report of the chief... 1936. 68 pp. Washington, U.S. Govt. print. off., 1936. (1 B52)

Rodents and soil conservation: p.65.

U.S. Engineer dept. Comprehensive report on reservoirs in Mississippi river basin... 97pp., illus. Washington, U.S. Govt. print. off., 1936. (148 9934)

The report, dated July 26, 1935 is on further flood control of the lower Mississippi River which may be attained through the control of flood waters in the drainage basins of the tributaries by the establishment of a reservoir system.

Data presented includes average annual and monthly rainfall; storm rainfall contributing to Mississippi floods; and run-off. Annual rainfall and run-off figures are for 1900-1931.

U.S. Forest service. Division of engineering. Handbook of erosion control engineering on the national forests. 90 pp. illus. Washington, U.S. Govt. print. off., 1936.. (1 F761H)

"The purpose of this handbook is to serve as a guide in carrying on erosion control work in the national forests. It therefore emphasizes the control measures which apply to comparatively undeveloped or forested types of land rather than those for agricultural or cultivated areas.

"The greater part of the handbook deals with the design and construction of engineering structures which have proven practicable for erosion control work, and

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U.S. Forest service... (cont'd)
with the considerations which affect the choice and
use of these structures."

[U.S.Laws, statutes, etc.] Laws relating to forestry, game
conservation, flood control and related subjects. 132
pp. Washington, U.S.Govt.print.off., 1936 (279 Un37)
Compiled by Elmer A. Lewis.

U.S. National resources committee. Progress report with
statements of coordinating committees, June 15, 1936.
61 pp., illus. [U.S. Govt.print.off.] 1936. (173.2 N214P)

Summarizes the organization and work of the National
Resources Committee and its coordinating committees dur-
ing the last year and suggests further activity for the
future.

The use of land is discussed on page 6 to 10; the use
of water on pages 10 to 13.

A list of publications appears on pages 53 to 61.

U.S. Office of experiment stations. Report on the agri-
cultural experiment stations, 1935. 160pp. Washington,
U.S. Govt.print.off., 1936. (1 Ex6)

Land use and conservation: pp.14-16. Some specific
examples of recent work of experiment stations include
the following: Kansas - "Recommendations for conserv-
ing soil moisture and maintaining a more diversified
and stable type of agriculture in regions of 15 to 25
inches of rainfall...are increase of organic matter in
the soils, and maintenance of grass or other plant
cover, especially use of perennial grasses and legumes
to prevent wind erosion."

Oklahoma - "Attention is called particularly to the
efficiency of alfalfa planted on the contours in re-
ducing the run-off and loss of soil from cotton fields
even with a rainfall of 1.56 inches in a single day."

Agricultural engineering: pp.140-143. The section
of p.140 dealing with snow cover irrigation water re-
sources relates that flood prevention and control and
the conservation of snow run-off for irrigation pur-
poses are now becoming specialized features of snow
surveying. Outstanding accomplishments of the Nevada
and Utah stations are reported.

U.S. Resettlement administration. Interim report, April
1936. 34pp., illus. Washington, U.S.Govt.print.off.,
1936. (195 In8)

A brief report, presented as a partial summary of
(cont'd)

U.S. Resettlement...(cont'd)
activities.

Land utilization division, by L.C.Gray, pp.1-7.

"The program of the Land Utilization Division of the Resettlement Administration...is the first program aimed primarily not at acquiring land for a special purpose but at correcting the misuse which has gone on through the years."...The program "has been developed to deal with what has come to be popularly known as the 'submarginal land problem.' The program is essentially a human program, since it is aimed at helping families to make the transition, from a hopelessly unfavorable natural environment to one offering promise of a more adequate livelihood."

Conservation work on the submarginal lands acquired by purchase include tree planting, constructing check dams or terracing to correct erosion, stream improvement and the restoring of range grasses.

STATE PUBLICATIONS

Walker, R.H. and Brown, P.E. Soil erosion in Iowa.
Iowa Agr.Exp.Sta. Spec.report 2. 46 pp. illus.
Ames, 1936. (100 Io9Sp no.2)

Suggested readings: p.46.

"In the late summer of 1934 the Soil Conservation Service began a reconnaissance erosion survey of the United States. The Soil Subsection of the Iowa Agricultural Experiment Station cooperated in Iowa, and the findings are reported in this bulletin" -Summary.

Zobell, I.D. Soil-management and crop-production studies, Carbon county area. Utah Agr.Exp.Sta.Bull.270. 22pp., illus. Logan, 1936. (100 Ut1[b])

Soils are classified as belonging to the Billings series and are generally known as a very fine sandy loam; are low in organic matter and tend to absorb water slowly and are "especially susceptible to erosion."

Erosion gullies are said to be increasing at an alarming rate in this region, for which over-grazing is responsible to a large extent. Additional investigation on gully erosion is considered necessary.

Windbreak and woodlot studies have led to the conclusion that Siberian elm and Russian olive trees are most suitable for this particular section.

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