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A Milestone In The Forestry Research Program In Iowa

G. B. MacDONALD

Back in the twenties the enlargement of the Federal forestry research program called for the establishment of the Central States Forest Experiment Station. This new station was designed to help the existing State agencies in the solution of important forestry problems. The territory, comprising the States of Indiana, Ohio, Illinois, Missouri, Iowa, and parts of Kentucky, Tennessee and Arkansas, had previously had little assistance from the already established forest experiment stations to the north, east and south. The importance of this central region was becoming more and more apparent with the waning supply of hardwood timber.

The location of the proposed Central States Station posed a problem which immediately interested the different States involved. The advantages of having such a Station located in a particular State were not difficult to understand and, as a result, suggestions were quickly available to the Federal authorities pointing out the advantages of locations proposed by the several States.

At that time a modest suggestion was made indicating Ames, the seat of Iowa State College, as a possible location for the headquarters of the new Station. It was pointed out that the Iowa location would be in contact with the forest school turning out technical men, some of whom were entering the research field. In addition the proposed location was the headquarters of the Iowa Agricultural Experiment Station with its elaborate program of research in livestock, farm crops, soils and farm engineering—not to mention some modest funds provided for several forestry research projects. The Station was located at Columbus, Ohio, six or seven hundred miles from the proposed Iowa headquarters. It was presumed that Iowa's tonnage of beef, pork and farm crops did not register much poundage in the decision, and it was imagined that to base the location of a central station on the importance of the Iowa forest resources would, no doubt, be received with a
smile. However, the Ohio location, so far as Iowa was concerned, was not seriously questioned.

It is interesting to note the development of the Central Station's interest in Iowa's problems, which naturally was dependent to a considerable extent upon the adequacy of funds and personnel. During the early days Iowa's forestry problems seemed to follow a Neptunian orbit so far as the Central Station was concerned. Some problems were visible as indicated by an exchange of letters, but effective action was remote.

Later a conference with the Director of the Central Station, on Iowa's research situation, was something of a red letter day even though this was held in connection with another meeting and in a distant city. Then, perhaps about ten years later, the ground literally trembled—Iowa was to have a visit from the then Director—in person and actually on Iowa soil. The shock almost upset the routine, but gave those directly interested in Iowa a feeling that we were not only in the same solar system but might expect to benefit with some radiations from the Center. Since that time there has been a steady increase in the relationship with the Federal Station. Frequent interchange of ideas has resulted; repeated visits of Directors and other personnel became common; memoranda of understanding between the State Experiment Station and the Federal Station were drawn up and approved; projects were jointly outlined; Federal funds supplemented meager State funds for needed projects; and by the early forties the State realized that its interests in forestry research were very definitely tied in with the Central States Forest Experiment Station.

Due to the fact that the Federal research program was directed from one center, the effectiveness of the cooperation was somewhat lessened due to travel distance and by not having a permanent technical staff on the ground where the research studies were to be carried out. This growing sentiment, both from Federal and State sources, has culminated in a decentralization of the Federal forest research work with the resulting establishment of sub-centers or State work units in cooperation with various State agencies.

July 1, 1946, was the real "red letter" day in Iowa's forestry research program. An understanding of the type of forestry research needed in an agricultural State like Iowa was perhaps responsible for locating the headquarters for the Federal staff at Ames. Here a close contact could be

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maintained with the Forestry Department and the Agricultural Experiment Station of the College and with the headquarters of the Conservation Commission close at hand. Prior to the establishment of the Federal work in Iowa a "memorandum of understanding" was drawn up and approved by the Central States Station and the State Experiment Station which insures the effective cooperation between the Federal and State agencies. Working agreements are also being drawn up between the Iowa Conservation Commission and the Federal authorities.

Preliminary efforts for setting up the Iowa program were undertaken by Director Leonard I. Barrett who was followed by J. Herbert Stone. The Iowa program was set in motion by J. A. Mitchell, the present Director of the Central States Forest Experiment Station.

The staff which has been selected for the Iowa program includes E. Garth Champagne, who is in charge; Richard D. Lane, who left in January to take charge of a similar program in Illinois; L. F. Kellogg, who has spent 19 years with the Central States Station; C. D. Maus, a forestry graduate from Yale University; Frank R. Longwood of the Iowa Farm Forestry Project; and Mrs. K. G. Ward, Secretary.

The Federal staff, in consultation with the State agencies, has formulated a broad statement of objectives. Summed up, this might properly be stated as the development of a fundamental forest research program, which will serve as a scientific background for developing and increasing the productive capacity of the present and potential timber lands in the State. An effort will be made to integrate the Federal program with the work of the State Experiment Station, the Iowa Conservation Commission or other agencies.

A preliminary survey by the Federal staff indicates that first efforts will be made along several lines. The average Iowa native woodland is producing only a small fraction of its potential capacity due to many causes, the most important of which is that the woodlands have had little or no management. Trees have been cut indiscriminately; the best species were taken out; poor trees were left to reproduce their kind; livestock was pastured in the timber; the small seedlings were browsed off or trampled out; and on the steeper areas soil erosion became serious especially when surface fires added their toll. The resulting stands are understocked with trees; have a poor distribution of age classes and often the more de-
sirable trees have been replaced by inferior species. This type of poorly managed forest offers a major problem for the researchers to develop procedures to secure a sustained annual or periodic yield, a maximum production of wood and a proper integration with wildlife and recreational use. To implement this type of project it will be necessary to lay out many experimental plots with different treatment practices to be carried over a considerable period of years. This type of project will contribute toward the solution of problems on many thousands of acres in the State.

Another type of problem which needs solution, and one in which the Station is interested, relates to the young hardwood stands. The original trees are gone and an immature stand originating from sprouts or seed occupies the land. The problem here is to carry out experimental practices designed to favor the best species and devise thinning or other practices which will increase the quality of the timber, reduce the rotation and increase the yield per acre. This again will require many experimental plots and a period of time for its solution.

The tree-planting phase of forestry has been of interest to Iowans for over 80 years. As early as the seventies State societies tried to stimulate tree planting and reforestation work by offering prizes. The College Extension Service and State Experiment Station more recently have encouraged reforestation and shelterbelt plantings. In 1925 the State started cooperation with the U. S. Forest Service, under the Clarke-McNary Act, in the production and distribution of forest trees for farm planting. This program, later supplemented by the Norris-Doxey Act, still functions in the State. During the past ten years a State forest tree nursery has been operating with a potential capacity of several million trees annually. Thousands of acres have been planted to trees in the State and hundreds of demonstration shelterbelts have been set out on Iowa farms.

The tree planting project offers a big opportunity for the Federal experimentalists. Extensive experimental plantations are needed to determine the best kinds of trees for the many soil, moisture and climatic conditions in the different sections of the State. Little information is available on the rate of growth and yield with different species, as well as the effect of thinnings and other cultural treatments in developing trees of greater technical value and in the shortest time. The fact that Iowa is one of the biggest producers of walnut timber is

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an indicator of one species on which research will no doubt bring substantial returns by developing better production methods.

Another project which is already on the Federal agenda relates to the development of more efficient methods of harvesting timber crops. This will involve a study of methods and equipment which will not only save labor but also minimize waste products.

Closely allied with the harvesting of the timber crop is the marketing problem. The satisfactory marketing of lumber and other forest products from the farm woodlot has been a difficult one. Past studies by the State have shown that the products were difficult to market, primarily because they were often poorly manufactured or not graded and also because the small operator could not furnish a particular product in the quantity which would interest the market. This situation points to the need of better manufacturing equipment and a study of cooperative marketing possibilities for the small woodlot owners. This field offers good possibilities for the Federal research program.

Another line of investigation which is of great economic importance in the State is that of proper land use. Hundreds of thousands of acres of Iowa lands are too rough or poor for cultivated crops. What should be the criteria for determining whether an area should be used for forage production or for growing a timber crop? Data to answer this problem are not now available for this region. A research project which would aid in answering this question would contribute toward setting up a more satisfactory plan of land use. It would apply to large areas of eroded land which will eventually be used for forage crops or timber.

The first few months of the new decentralized research program have been involved largely in laying the groundwork. The program thus far has been effective in getting information to the public relating to the purposes of the program and in securing the backing of various interests.

In order to better implement the research program the Federal office is planning on securing the allocation of 2,000 to 3,000 acres of State forest lands in order to set up long-time experimental plots which will have a minimum of interference. Since the findings of a forest research program usually require a long period of years for completion, it is necessary to have a stable ownership of the experimental areas. This will help to avoid abortive termination of projects in which
large sums of money have been invested and much effort expended. Even though the major experimental areas may be on publicly owned lands, yet the main purposes of the Federal program are to benefit the 2½ million acres of privately owned forests, develop patterns of management for these areas and other marginal or sub-marginal lands.

Finally the decentralized forestry research program of the U. S. Forest Service which has been initiated in Iowa promises to offer facilities which will go a long way towards the solution of many of the timberland problems of the State. With the effective cooperation of the several State agencies interested, it appears that if a later generation of Iowa farmers do not cash in on their timber lands, as a part of the farm income, it will not be the fault of those who are developing the present comprehensive forestry research program.