

## THE LITERATURE OF ILLINOIS NATURAL HISTORY AND GEOGRAPHY

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This is a report of the Committee on Ecological Bibliography, of which Part I was published in 1935. It tells what recent work has been done for Part II in assembling citations pertinent to the biology of Illinois, with annotations if these are necessary or helpful. Since many descriptions published long ago were not included in Part I, it also attempts to evaluate some of this older literature, especially as it throws light on the very considerable changes that have taken place in the physical and biological environment of Illinois. Some of our economic problems, as flood control, soil conservation, and wildlife management, may be more intelligently met if there is sufficient awareness of the trends of change.

The older accounts of conditions in the more extensive prairies emphasized their wetness during spring and part of the summer. For about a century roadmakers, engineers, and farmers have labored to accelerate drainage, especially on uplands, with the result that flood problems seem to be progressively aggravated in the bottomlands. Occasional droughts and water-supply shortages are troublesome during the drier years, perhaps more so now than formerly. Yet the records of earlier floods and droughts make it less certain that we may anticipate continued increase of such difficulties. To enable us to see what actually has taken place, chronologies are being prepared listing such recurrent matters as floods, droughts, severe winters, tornadoes, glaze-storms, and

outbreaks of destructive insects, with references to articles describing these events.

Non-recurring changes in the prairie environment have likewise occurred and are continuing. The human ecology of prairie farming illustrates this admirably. The early trials of various thorny plants to serve as living fences settled upon Maclura as the best hedge material; of recent years the eradication of osage hedges has somewhat enlarged effective areas for cropping. Evidently the windbreak value of hedges is less esteemed now than formerly. The articles and short notices in such journals as the *Prairie Farmer*, bearing on this and similar developments, are too numerous to be separately cited, but a collation of references to such subjects has been made, so that particular trends are made evident. Miss Marguerite Simmons of the University of Illinois Library staff searched through many earlier volumes of the *Prairie Farmer* to assemble this material. In so doing she brought to light a number of articles of direct value to biologists.

Plant and animal life of our native prairies have been so nearly completely destroyed that prairie biology in Illinois seems almost to be history, rather than a living subject. Interest in reconstituting some small samples of near-prairie grassland is increasing. Dr. V. E. Shelford and Dr. R. F. Fuelleman are now engaged in such a project near Urbana. Such efforts will depend partly upon the ideal striven for. Some prairie

ecologists maintain that truly undisturbed prairie consisted almost wholly of the dominant grasses, with accompanying herbs few. They believe that degree of disturbance is suggested by degree of abundance of flowering dicot herbs. Other prairie ecologists, supported by many published descriptions of prairie vegetation, consider that there were within a given district different types of prairie and many variations within a type, flowering herbs being abundant in some types. If the latter view is correct, almost any made-to-order combination of native prairie grasses and herbs will resemble some formerly existent natural prairie growth.

Though the old-time descriptions, even those by botanists, are disappointingly lacking in detail as to composition of prairie, they do throw much light on this same question of grasses versus dicots. They clearly show that from middle Indiana to the Missouri River flowering herbs were conspicuous in most of the prairies. Page citations to these old descriptions are now available in considerable numbers.

We shall probably never have a basis for judging whether or not a particular bit of prairie is "undisturbed," nor how much changed from its "original" condition. We can never properly evaluate the influence of bison, elk, and deer on Illinois vegetation, nor know all the factors responsible for the oak openings and barrens of former times. Before 1800 the old French settlements on bottom prairies along the Mississippi, and village sites and camping places of Indians in upland prairie regions, were largely occupied by blue-grass. Where prairie was frequently grazed or trampled, the old writings frequently state, blue-grass, in places with white

clover, became established. After settlement by Americans from eastern and southern states, grazing was usual about every farm and village. Farm animals were generally unconfined; their disturbing influence reached to some distance. The wettest prairie flats which last were brought into cultivation were commonly used for grazing by large herds. Some areas were converted to blue-grass long before they could be plowed. This was true also of the vicinity of certain groves, which afforded shelter to cattle that grazed over the surrounding prairies. Milk's Grove in northwestern Iroquois County, and Pigeon Grove east of Loda, were so used. In earlier days the Indian ponies ranging from such places as Indian Grove in Livingston County or Parish Grove in Benton County, Indiana, similarly had had their effects on prairie vegetation before botanists were able to study it. The older county histories are of great value in elucidating these changes.

The old question whether settlement encouraged the spread of forest by the stopping of prairie fires, so commonly stated as the principal basis for the fire theory of causation of treelessness, is touched on in many writings old and new. Such statements should be read critically. Highly circumstantial accounts of fires eating into forests, or of new forests following settlement, were written by travelers who passed through the state on one brief tour. They may turn out to be second- or third-hand variants of the authors' readings of earlier works. It is notable that Timothy Flint, one of the most dependable writers on the early middle west, says much about prairie and little or nothing about prairie fires. Several questions are pertinent: Did fires actually diminish

timber areas? To what extent did fires terminate abruptly after a district was settled? Did any other influences incident to settlement possibly help in establishing tree seedlings where prairie had been? The relatively few passages in the literature that positively bear on such questions are more significant than most descriptions of fires and of forest spread imputed to their cessation. Specific references to such passages are being added to the bibliography of Illinois ecology.

Turning to current publications, the established journals, serials such as the *Transactions of the Illinois Academy*, and publications of the *State Surveys*, add their quotas each year to the literature of biology and geography of Illinois. The *American Midland Naturalist* has become a leading source of materials on the

midwest country.

In addition to those mentioned in earlier reports, the following have helped materially in adding to the bibliography: George W. Bodecker, Clarence G. Golueke, Elizabeth Frederick, Marguerite Simmons, Edna L. Meadows, and Richard Walker.

Of about 2000 titles of books and articles examined, 700 are completed for Part II of the bibliography, with annotations and partial analysis if these are necessary; 700 are assigned to the "Supplement," which will not be published; the other 600 need additional checking or collation. About 800 articles and books for which citations are on hand have not yet been examined. Completed titles and supplement, on cards arranged by authors, are available for consultation at Room 211, Natural History Building, Urbana.