

## Scientific Wildlife Management in Ohio: The Legacy of Paul B. Sears

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**ABSTRACT.** Paul B. Sears had an eclectic interest in ecosystems, including an active concern for wildlife. His professional training was in botany and ecology, but he was one of the first to recognize and write clearly about wildlife as a resource vitally dependent on soils, plant communities and human land use. He employed his impressive scientific capabilities in active service to practical wildlife conservation as chairman of the Board of the National Audubon Society, member of the Ohio Commission on Conservation and Natural Resources and member of The Ohio Wildlife Council. In these positions and others, he did much to further scientific wildlife management. He probably will be remembered best in wildlife management circles for his insightful insistence that wildlife problems were ecosystem problems generated, and therefore solvable, by humans.

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### INTRODUCTION

Paul B. Sears was an outstanding botanist and ecologist, documented elsewhere in this volume (e.g., Burgess, Stuckey and Shane). However, his interests spanned far more than basic science (Stuckey 1990, Disinger this volume). His curiosity about and concern for all forms of life led to an intense interest in the applied discipline of conservation, often referred today as ecosystem management. Sears (1942) defined conservation as “prudent and skillful use of resources to obtain the maximum good for the longest possible time. Ideally it produces a permanently balanced relation between a human group and its environment.” He clearly saw conservation as a practical application of ecology with three vital components: scientific knowledge, ethical commitment and action to pursue social change (1956).

Sears (1956) was concerned that “we are guilty of using, with an almost diabolical cleverness, those laws of nature which suit our immediate ends, without attending to the broader principles which tell us which way we are heading.” He believed that in the United States, science was being applied largely to the depletion and disruption of resources (1956). He acerbically observed, “... whatever becomes technically possible and profitable seems, if not ethically justified, at least obscured from ethical criticism.” Sears also asserted that in this time, the “... environment was festering under exploitation and failure to use knowledge we already had.” (1937) He saw and took an active part in solving the disturbing problems associated with maladaptive and destructive land use by man, such as the Dust Bowl (1930-1936). In his typically lyric but concise fashion, he wryly observed that on prairie grassland, “only the plow is truly lethal.” Sears (1946) decried owners of Ohio land who “took heavy returns from the soil and called them profits, when in fact these returns were destroying the capital value of their land. These returns were not profits, but pledges against the future.” He was visionary in his early recognition that destruction of tropical rain forest was of vast and ominous consequence for mankind (Sears 1956, 1969). He also was concerned with the impact of rapidly increasing human numbers on natural environments and man’s future (Sears 1965).

However, Sears unique professional standing probably derived from his ability as a statesman rather than as a scientist. He was both patient and gently demanding of people with whom he worked and taught (Potter this volume) and, consequently, he pursued problems others considered intractable (Sinnott 1955).

He expressed the opinion that botanists can serve well without engaging in evangelism, and noted that he never underestimated another man’s intelligence or overestimated his information. His approach was well summarized in his discussion of stream pollution. “There is growing talk of compulsory legislation ... [but] I would much prefer the slower, more effective process of getting cooperation of those who now offend.” On siltation of streams, Sears said, “even if it were possible to compel the farmer to conserve his land, which I doubt, it would be a tragedy to meddle with his traditional self-respect. Though the progress is slow, I am encouraged to see what gains have been made in improving the standards of American farm practice through education and the appeal to enlightened self-interest (Sears 1946).” He later commented, “At Yale, I found that our job in natural resources was ... a question of human values ... people are going to have to decide what they want, and what they think is important” (Sears 1965). He spent most of his career helping people to decide that natural resources are vitally important.

In his 1942 chapter on the history of conservation in Ohio (Sears 1942), Sears demonstrated a clear grasp of why wildlife populations in the state had declined dramatically. He began his discussion by mentioning weed laws, which were predicated upon introduced plants that thrived on sites misused by man. Included as weeds were brush and briars, when destroyed, eliminated food and cover for many wildlife species. Sears noted the destruction of predatory animals such as the wolf (*Canis lupus*) and panther (*Felis concolor*) in the name of profitable agriculture, and he commented on the folly of the bounty system. In the period from 1852 to 1890, legislative protection of muskrat (*Ondatra zibethicus*), wild turkey (*Meleagris gallopavo*), quail (*Colinus virginianus*), white-tailed deer (*Odocoileus virginianus*), woodcock (*Philohela minor*) and other species indicated the severe decline of most wildlife species. White-tailed deer and wild turkey later were extirpated from Ohio. Sears was aware that regulation of hunting was important, but that “None of this law-making took proper cognizance of the fundamental change in living conditions which was being brought about by destruction of forests, which during this same period decreased from over 50 per cent of the State’s area to less than 20 per cent.” Creation in 1886 of a bipartisan Fish and Game Commission and passage of the first hunting license requirement in 1902 were important steps, according to Sears. However, he feared for the means used to conserve wildlife, namely hunting licenses. He said that this “... carries the inference that conservation of natural resources is the business of sportsmen alone, whereas it is the business of every citizen.” In 1939, the name of the commission was

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changed to the Division of Conservation and Natural Resources, a recognition of "... the interrelation of all conservation problems." He mentioned that many of the state's streams and waterways still were being used as sewers for the toxic wastes of cities and industries, with tragic consequences for wildlife. He closed this discussion with the comment that game management in 1942 involved a better sense than ever of the interdependence of game with other natural resources; this theme of ecosystem synergism was a dominant theme in his writing.

During much of Sears' career, what is today the profession of wildlife management was called "game management." Aldo Leopold, the founder of scientific wildlife management, defined game management as "... the art of making land produce sustained annual crops of wild game for recreational use ..." (Leopold 1933). Sears (1946) clearly understood and valued this concept. He was also aware of, and helped formulate, principles of wildlife management including carrying capacity, soil health as a vital progenitor of healthy wildlife populations, critical habitat as a juxtaposed mixture of different foods and covers, the increased diversity of wildlife at habitat "edges" (Sears 1969) and limits to population growth due to such factors as emigration and disease (Sears 1965). Sears (Sears 1969) was in the forefront of concerned conservationists who realized that the cropping of African wildlife by controlled hunting might be the only way to save "... these magnificent groups of wildlife and the conditions they need to survive..." Sears recognized (1965) that most wildlife management attention was focused on game animals because hunters constituted the only segment of society clearly willing to pay for management and that this intractable problem unnecessarily limited the profession. Sears (1969) correctly questioned the use of coyote (*Canis latrans*) "getters" by ranchers and wildlife professionals to save a few livestock. As an ecologist, he reasoned that a result of coyote control was increase in rodent populations, which then encouraged invasion by noxious sage on native grassland.

Sears' approach to wildlife management is summarized clearly in his discussion of his service on the Ohio Commission on Conservation and Natural Resources (Sears 1946):

Fundamentally our problem on the Commission is to encourage better practices of land and water use within the state. Fish and wildlife will be restored only as fast as we restore suitable living conditions for them. Game farms and hatcheries can produce young animals in any quantities, but thereafter comes the problem of survival. The land upon which game must grow to maturity belongs mainly to the farmers of Ohio.

He continued that good woodlot practice will benefit wildlife but that otherwise provision of wildlife habitat by farmers "seems to be a labor of love ... given the possibility of vandalism, the necessity of harvesting alfalfa regardless of nesting pheasants and the need to clear land." Sears placed great hope in the wildlife benefit of fencerows to farmland wildlife and doubtless was saddened to learn of extensive fencerow loss in modern Ohio (Sears 1946).

The following concentrates on the eight years Sears served on the Ohio Commission on Conservation and Natural Resources, which was to become the Council of the Division of Wildlife. This service has not been documented previously, was significant to wildlife management in Ohio and offers further insight into Sears' visionary philosophy. His service here during the formative years of scientific wildlife management called upon his eclectic mixture of scientific training, ethical commitment and social grace.

## OHIO COMMISSION ON CONSERVATION/COUNCIL OF THE DIVISION OF WILDLIFE (OCC/CDW)

Sears was appointed to the OCC/CDW on 15 February 1946, and served two terms of 4 years until he was replaced 5 February 1954. He was 55 years old when he was appointed and was resident in Ohio at Oberlin College until 1950. He commuted from Yale University, New Haven, Connecticut, to Ohio during his last 4 years on the OCC/CDW, an indication of his dedication to practical conservation and public service. During his tenure on the OCC/CDW, Sears had significant impact on the operational philosophy and practices of wildlife management in Ohio. He contributed actively in discussions and in the making of motions from his first meeting; the minutes indicate that he was immediately provided a leadership role.

The OCC/CDW consisted of eight members appointed by the Governor. Their positions involved making policy, approving operational procedures and overseeing the budget. They met once monthly, usually with the Commissioner/Chief present. The Commissioner/Chief was the head of operations and, like all other employees, was hired by the OCC/CDW. Technical personnel normally funneled matters needing attention through the Commissioner/Chief but occasionally were asked to be present for input and discussion. The OCC/CDW usually spent several days in the field annually with technical personnel. The Commission was renamed the Council of the Division of Wildlife in 1949.

My discussion of Sears' contributions as a member of the OCC/CDW is taken from the official minutes, housed with the Ohio Division of Wildlife, Fountain Square, Columbus. Dates cited represent the recorded meetings.

### Research

Given his background as a professional researcher, it is not surprising that Sears showed considerable interest in the research function of the Division. Sears' opinion was commonly sought about scientific matters. For instance, he was asked to review a book manuscript by Langlois called *The ecology of Western Lake Erie* before the OCC/CDW would agree to fund publication (19 October 1951). Some of the topics considered during Sears' tenure included muskrat damage to farm ponds (7 February 1947); dynamics of rabbit (*Sylvilagus floridanus*), pheasant (*Phasianus colchicus*) and quail populations (7 November 1952), relationships of hunters and farmers (16 March 1951), better production methods and better strains of game for Ohio habitats (12 July 1951) and effectiveness of game management practices (22 August 1947). Sears initiated scientific management of Ohio's deer herd when he moved that "a deer management program be carried out in Ohio" and that "an accurate survey be made of the deer population" (7 January 1949). Sears generated an investigation on effects of spray herbicides and pesticides on wildlife (13 March 1953). He instigated the move of all Division research on wildlife to the Wildlife Research Station at The Ohio State University (10 April 1947), where professionally trained researchers could do it.

### Education

Sears spent much of his professional career in universities (Stuckey 1990), so it is not surprising he placed great faith in conservation education: "Adequate education will extend that sympathy, interest and concern to take into account the people who will come after us, as well as people that are alive

today" (Sears 1965). As a member of the OCC/CDW, Sears was intensely interested in the education and public relations aspects of the Wildlife Division. At the 9 May 1946 meeting, a Conservation Month was approved to "make people of Ohio more conservation conscious" because the OCC/CDW was acutely aware that "we are a long way from having the necessary interest in all phases of conservation." Sears was an active advocate of the Conservation Laboratory, a joint venture with The Ohio State University Department of Education to train teachers in conservation. He was delighted at Carl Johnson's success as program coordinator (19 September 1947). After Johnson left to pursue a doctorate, Sears was discouraged to find that the program had declined in part because of the "emphasis on natural history rather than basic conservation." (12 July 1951). Sears was a strong advocate for the motion pictures sponsored by the Ohio Division of Wildlife and produced by Karl Maslowski. Ohio Division of Wildlife employees routinely showed these movies to a wide and enthusiastic cross-section of Ohioans. During Sears' tenure, a strong effort was made by the OCC/CDW to provide information to school children (1 June 1951; 20 February 1952). The *Conservation Bulletin* reached a circulation of more than 52,000 and was sold on public newsstands (10 April 1953; 9 October 1953).

Sears was asked by the OCC/CDW to study the need for "wildlife extension" and all public relations (14 April 1950); he subsequently recommended that the Ohio Division of Wildlife implement wildlife extension. Eventually a Memorandum of Understanding was signed with The Ohio State University College of Agriculture so that appropriate conservation information could be made available to farmers. He enthusiastically supported participation of the Ohio Division of Wildlife at state and county fairs (19 September 1947). On 8 December 1949, Sears moved that the Ohio Division of Wildlife publicize to farmers the "flushing bar" that Dr. Charles A. Dambach of The Ohio State University explained could save 40 to 70 percent of birds and rabbits nesting in mowed hayfields. Sears was also a convincing supporter of within-agency training sessions for Ohio Division of Wildlife employees (12 May 1951), something that previously had been discontinued (6 October 1950).

### Human Relations

Sears clearly was concerned for, and sympathetic to, the people employed by the Division. During the 2 January 1947 meeting, he moved that the OCC/CDW attend the Game Protectors' Association banquet to explain the habitat development projects and answer questions. He later moved to commend the exemplary work of law enforcement personnel during the 1947 deer season (9 January 1948). During the 13 May 1949 meeting when Sears was not present, the OCC/CDW voted not to purchase new hats for Game Protectors because of expense. However, at the next meeting, Sears was present and persuaded the group to buy the hats. He seconded the motion to insist that the Civil Service Commission agree to reclassification and pay ranges "... to hold and develop key personnel ... and to prevent the loss of very valuable personnel ..." (27 January 1950). In 1951, the OCC/CDW decided to provide state cars for personnel driving more than 20,000 miles on the job in their personal cars and to purchase two-way radios for Game Protectors, a major safety improvement for people in a dangerous job. On 7 November 1952, Sears showed his typical confidence in the technical personnel of the Division by moving (without OCC/CDW approval) to

allow the Chiefs of the Ohio Division of Wildlife and of Forestry to jointly decide whether hunting seasons should be cancelled because of severe fire hazard.

## WILDLIFE PRODUCTION

### Artificial Propagation

During Sears' tenure on the OCC/CDW, an emphasis in wildlife management was placed on the production of "wildlife" on game farms. These animals were released into the wild, often on the day before hunting season. The Division had active programs in raising and releasing raccoons (*Procyon lotor*), pheasants, quail and rabbits. But Sears had doubts about the ecological validity of this process and actively opposed quail and pheasant programs (12 May 1950, 12 July 1951) but he was overruled. By 7 November 1952, skepticism from the technical staff supposedly had reduced game farms and artificial propagation to "wildlife experiment stations." However, \$8,500 was allocated on 4 December 1952 for newer and bigger pheasant pens. An interesting discussion occurred on 9 October 1953 over a "misunderstanding" between the Division and the Mahoning County Sportsmen's Federation about pheasant distribution; the Federation subsequently published a brochure termed by Chief Charles A. Dambach as "mostly incorrect." If one reads between the lines, the misunderstanding was probably about how many pheasants should be stocked in Mahoning County. Wildlife management professionals have long recognized that artificial propagation for stocking in areas already occupied by the species constitutes ecological illiteracy, cannot be justified economically, and is probably inhumane (Studholme 1948, Allen 1954). Today, the Ohio Division of Wildlife still stocks pheasants (not other species). Although the division has tried for years to stop pheasant stocking, pressure from hunters has prevented it from doing so.

### Restocking from the Wild

In contrast to artificial propagation, restocking animals trapped from the wild and reintroducing them into habitat from which they were extirpated constitute an accepted and successful wildlife management practice (Kallman and others 1987). White-tailed deer (*Odocoileus virginianus*) and beaver (*Castor canadensis*) are two species that have profited successfully in Ohio from this strategy; river otters (*Lutra canadensis*) in Ohio and wolves in Yellowstone National Park are exciting future additions to decimated populations of native fauna. The ecological criterion of importance is the successful regeneration of the species' critical habitats prior to reintroduction. Sears was involved in the successful reintroduction of wild turkey to Ohio and ruffed grouse to northern Ohio (10 July 1953). He also voted for the unsuccessful reintroduction of snowshoe hare (*Lepus americanus*) to northeastern Ohio.

### Refuges

During Sears' time on the OCC/CDW, the purchase or leasing of refuges for wildlife was a major practice. For instance, on 19 April 1946, the Commission voted to pay \$20,000 for small refuge leases at a time when Game Protectors made \$400/month. These refuges were leased from 1 to 5 years for "preservation, propagation, protection of wildlife" and hunting was illegal. Many large areas such as Buckeye Lake, Tar Hollow State Forest, Zaleski State Forest and Shawnee State Forest were purchased as refuges. Most leased refuges ranged from 20 to 500 acres. As early as 2 January 1947, a motion was approved by the OCC/CDW to suspend all game refuge leases. However, leasing continued, probably because

it was politically popular and infused significant monies into local economies. Unsuccessful efforts were made to eliminate refuges on 12 May 1950, 7 November 1952, and 13 March 1953. However, Chief Dambach finally was able to phase out leasing in October 1953. Wildlife managers have long known that refuges are unnecessary and wastes of constrained resources for resident animals with small home ranges, such as rabbits, and for animals that are common and fecund, such as deer (Foote 1971). In 1991, refuges were important management tools mainly for migratory and endangered wildlife (Robinson and Bolen 1989).

### Planting

As an ecologist, Sears knew that wildlife depended on habitat that was composed largely of plants. He and other members of the OCC/CDW understood that by 1946 much of the native plant cover of Ohio had been destroyed and replaced with non-native species. Hence, one of the ways to help wildlife was to plant suitable vegetation. On 18 July 1947, Sears seconded a motion to spend \$15,000 for tree and shrub planting; on 13 August 1948, he moved to spend \$30,000 for the same program. By the fall of that year (12 November 1948) a "miracle plant" had appeared on the conservation scene and the OCC/CDW approved \$5,000 for purchasing multiflora rose (*Rosa multiflora*). By 17 June 1949, the OCC/CDW approved purchase of 1 million rose plants from outside Ohio to supplement the 300,000 produced in the state's nurseries. In 1950, the OCC/CDW decided to "increase the intensity of multiflora rose planting." By 13 March 1951, five tree planting machines were being used full-time. The Division also was planting large numbers of "evergreens" during this period.

When multiflora rose became popular, the consensus was that it could not spread, for the seed was remarkably recalcitrant to germination. However, scientists failed to consider the scarifying capabilities of a bird's digestive tract. Shortly after the extensive planting, rose seedlings began showing up in pastures and open woods, where farmers did not want them. The saga of multiflora rose is illustrative of wildlife management's romance with exotic plants and animals. Initially this rose looked like an outstanding prospect and certainly provides excellent wildlife cover. It also has had substantial conservation value in preventing erosion and served as a living fence for farmers. However, in retrospect, the wildlife management profession would have been far better served to use native plants and avoid the considerable animosity and distrust for the practice that developed among farmers.

### Feeding Wildlife

By 1948, a major limiting factor for game was considered to be a lack of winter food. At this point (9 January), the OCC/CDW decided to implement a "hand-feeding policy to be carried out when weather conditions warrant." By winter of 1949 (7 January), all districts had a winter feeding program. In that same year, an astonishing attempt was made to locate every covey of quail in Ohio to provide food and practice "vermin" (predator) control. Corn was raised routinely on Ohio Division of Wildlife lands to be harvested and fed to wildlife, but supplementary purchases were often necessary (8 September 1951).

The wildlife management profession has learned to favor native wild plants that provide adequate food rather than provide food by hand. Hand feeding resulted in numerous problems including habituation of wildlife to people, poor nutrition, social crowding, disease transmission, over-use of areas where feed was being dumped and unjustifiable costs. Today feeding of wildlife

by hand is rarely sanctioned by wildlife managers and then usually only with endangered species or in an attempt to divert wildlife from damaging vulnerable crops (Allen 1954, Robinson and Bolen 1989).

### Predator Control

By 1950, the Division with the thought of helping the "good" wildlife, namely the game herbivores, was practicing predator control widely and indiscriminately. Even though criticism was beginning to mount (10 February 1950), the OCC/CDW appropriated \$37,000 for predator control in 1953 and \$45,000 for 1954. No clear evidence exists in the minutes of OCC/CDW meetings that Sears vehemently opposed predator control, but he clearly had major reservations about the practice and its ecological basis (Sears 1969). Today the wildlife management profession sanctions predator control only in carefully considered circumstances, often with endangered prey and common predators or to defend vulnerable livestock.

### Hunting

During the years that Sears served, a primary responsibility of the Division was to provide the "best hunting possible given the resources available" (15 July 1951). Much of the OCC/CDW's time during Sears' tenure was taken with consideration of hunting regulations. For instance, the 1946 hunting season allowed a bag of two Hungarian (gray) partridges (*Perdix perdix*); four rabbits; four squirrels (*Sciurus carolinensis*, *S. niger*); and two opossums (*Didelphis virginiana*); the season was closed on deer, skunk (*Mephitis mephitis*) and Canada geese (*Branta canadensis*). In 1947, the hunting season was closed on Huns and partially closed on woodchucks (*Marmota monax*); ruffed grouse (*Bonasa umbellus*) had increased enough to have a 2-week season with a bag limit of 2 (12 June 1947). In 1949, the Ohio Division of Wildlife was euphoric about record pheasant and rabbit populations and believed that Ohio had the first or second best hunting for those two species in the nation (8 December).

Sears was especially concerned with declining waterfowl populations. In 1946, he moved for differential regulations in two waterfowl zones, Lake Erie and all other Ohio waters (13 June). In 1947, he moved to reduce the bag limit on waterfowl to 5 (18 July).

Also in 1947, the Commission made an historic decision to hold a deer season in eight northeastern Ohio counties. A deer season was held in 12 counties in the following year, but no season was held in 1949. In 1951, deer check stations were initiated in all counties with an open season on deer. On 16 March 1951, the OCC/CDW declined a request from the Association of School Principals' that hunting seasons open on Saturday because "two-thirds of their students were leaving school on the first day of hunting season." In 1953, the League of Ohio Sportsmen proposed a hunter safety program for young hunters. By 1951, some anti-hunting sentiment was beginning to develop; three residents of Medina filed suit to stop deer season (1 December). In 1953, a delegation of women from Medina appeared before OCC/CDW to argue against all hunting in the county, especially deer hunting. They commented that "an army of hunters, mostly from Cleveland and Akron, came through their fields during the last deer season" and "much more damage was done by hunters than by deer." A motion to close the deer season in Medina and Cuyahoga counties failed (9 October 1953). However, in the next OCC/CDW meeting, Sears seconded the motion to exclude Medina and Ashland counties from the next deer season, and this motion passed.

Following Sears' retirement from the OCC/CDW in 1954, much has changed about sport hunting. Numbers of hunters increased, as have license fees. Hunter numbers and behavior have resulted in increased posting of private land against hunting. Anti-hunting and -trapping organizations have been increasingly vocal but generally unsuccessful in Ohio. Highly educated biologists use sophisticated computer software to monitor wildlife populations, some of which have increased while others have declined. There are no Huns, far fewer pheasants, fewer quail, fewer ducks, perhaps more rabbits, more coyotes, more beaver, more wild turkey, far more Canada geese and vastly more deer. Grouse season evolved from two to about 20 weeks. Deer harvest increased from a few thousand to nearly 10,000, and management problems have magnified in direct proportion.

As a member of the OCC/CDW, Sears sat through many hours of tedious routine business as well as acrimonious debate. He endured political meddling in biological matters. He saw progress and suffered defeats. Through it all, he offered judgments based in science with an ecosystem perspective. He was far more inclined to advocate compromise and patience rather than combative confrontation. He never lost his ethical commitment to and fervor for conservation. At the end of Sears' first term, his colleagues indicated officially that they would like to have him return if he were able to do so, given his other extensive commitments. I am not aware of a formal invitation to return being extended to any other OCC/CDW member. After his second term, all OCC/CDW members signed a certificate of distinguished service and presented Sears with an original wildlife painting by Alvin Staffan, a noted Ohio artist and photographer.

Paul B. Sears was a man blessed with exceptional vision, motivation and talent. He used his unique abilities in the service

of mankind and made significant contributions to the conservation of all natural resources, including wildlife.

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