

BEAGLE CLUBS IN TENNESSEE: A NONCONSUMPTIVE WILDLIFE RESOURCE¹

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ABSTRACT:

An 88-question survey was conducted on 15 beagle clubs in Tennessee. Club history and membership, lands and enclosures, predator control, cottontail introduction, habitat management, and field trial management are summarized. Results revealed that clubs expend significant amounts of money annually to perpetuate their sport, continue to introduce large numbers of rabbits, conduct predator control programs, and practice highly varying degrees of habitat management. Characteristics of a "typical" beagle club are described. Based on the club responses an evaluation is made of the relative "state of the art." Suggestions are made regarding better habitat and field trial management for the benefit of both the beaglers and the cottontail rabbit.

INTRODUCTION

Although certain practices carried out by beagle clubs might be construed as "consumptive" (i.e. predator control and buying and stocking rabbits), beaglers are very protective of cottontails and do not typically pursue them for direct consumptive purposes on field trial areas. Thus, beagle clubs and their field trials can be categorized as the nonconsumptive use of a wildlife resource; a non-consumptive use that has been in existence for many years in Tennessee and many other states in the Southeastern United States. Nationally the American Kennel Club reported that during the 1971 field trial season 394 beagle clubs in the United States applied to conduct a licensed trial (American Kennel Club 1971). These beagle clubs and their field trials involve thousands of dedicated participants and the annual expenditure of millions of dollars for the non-consumptive enjoyment of cottontails. However, no published, technical information could be found in the literature regarding the basic structure of beagle clubs, their field trials, and efforts to manage the resource. This report summarizes the above information for beagle clubs in Tennessee.

METHODS

The American Kennel Club was contacted for a list of the beagle clubs in Tennessee. A list for each state was not furnished but this organization did furnish a list of licensed field trials (Crowley 1972). Because it is likely that active beagle clubs hold a licensed field trial annually, the American Kennel Club's list was determined to be adequate for specifying the number of beagle clubs in or in close proximity to Tennessee.

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Fifteen beagle clubs with Tennessee addresses and four clubs located close to Tennessee (near the state line) were sent an explanatory letter and an 88 question survey. The four out-of-state clubs were included because many Tennessee residents are members of these clubs. The questionnaire was divided into the following major topics: club, and enclosures, enclosure construction, predator control, rabbits, habitat, and trials.

RESULTS AND DISCUSSION

Questionnaires were returned by thirteen of the fifteen beagle clubs located in the state and by two beagle clubs near the Tennessee state line in Mississippi and Kentucky. Only organizational information is presented from the two clubs responding from out-of-state.

Club

The names, general information, and location of each beagle club are presented in Table 1. The year in which the club was organized is an estimate given by the secretary for each club. The average number of active members per club in Tennessee is 31 ($r = 6$ to 50). Two of the clubs limit their memberships but did not indicate the maximum number of members.

Annual dues per member range from \$5.00 to \$35.00 (mode = \$5.00). An initiation fee of \$75.00 is charged by one club.

Twelve clubs hold their meetings in a defined clubhouse; ten own their clubhouses and two rent. One club is allowed to use a meeting room in a local bank.

Land and Enclosures

Eleven clubs own a total of 967 acres. The two Tennessee clubs responding that do not own land rent a 100 acre tract and a 60 acre tract for \$100.00 and \$750.00, per year, respectively. Both clubs have enclosures on the rented land. The average total acreage controlled by a beagle club in Tennessee is 84.4 acres ($r = 40 - 167$).

Land is fenced by eleven clubs and two have more than one fenced enclosure on their land. Five of the thirteen clubs have or plan to have two enclosures. Although the two enclosures usually serve the same purpose, one club uses a 20 acre area for training young dogs (1 year old) and a second enclosure of 80 acres for field trials. A total of 787 acres is enclosed by eleven clubs with a range per enclosure from 20 to 100 acres. The average acreage per enclosure is 60.5 acres.

Enclosure Construction

According to beaglers an enclosure has two major purposes: to keep rabbits in and to keep predators out. The type of fencing used in construction is therefore important. Most of the clubs use 17 gauge, galvanized woven wire with a 1½ inch mesh similar to "poultry" or "chicken" wire. Several clubs refer to this type of fencing as rabbit fence, rabbit wire, or fox netting.

Fencing four feet high is used by six clubs, and five clubs use fencing five feet high. All eleven clubs with enclosures have a bottom apron to prevent burrowing under the fence, however, only four clubs bury the apron. The remaining clubs anchor the enclosure apron with stakes, rocks, and grass.

Nine clubs use electric fences. These clubs use an electric fence of a single strand of wire on insulators above the woven fence.

A combination of steel and wooden posts are used by six clubs and four clubs use only wooden posts. Wooden posts are creosoted pine, locust, or cedar. Only one beagle club uses steel posts altogether.

Two problems reported by four clubs were groundhogs burrowing under the fence and vegetation growing on the fence. Rusting of the fence was also mentioned by these four clubs as a major problem. The clubs that indicated corrosion problems are older clubs (Table 1). Other problems reported were "shorting out" of the electric fence, water washing out parts of the fence, tree limbs falling across the fence, deer damage to the fence and club members riding down the fence wire.

Age was a factor in the amount of maintenance needed for the fence. Maintenance consists mainly of checking for holes in the enclosure, removing vegetation from the fence including fallen tree limbs, and repairing water damaged areas. Repairs are done by members with the cost of maintenance for five clubs between \$25.00 and \$100.00 annually. Six clubs reported very small or no maintenance cost.

Installation costs of materials for an enclosure range from \$1100.00 to \$3250.00. Labor was usually not included in cost estimates because members are the primary source of labor. Those clubs listing labor gave an estimate of \$600.00 per club or approximately \$10.00 per acre enclosed for installation. A total expenditure of \$23,095.00 was given for labor and material to enclose 787 acres by twelve clubs. Thus the average initial cost for installation of an enclosure including materials and labor was \$29.35 per acre enclosed. This cost would likely vary by regions and by years. One club included the cost of grass seeding and liming with fence installation expenditures; this expenditure was included in the above figures because the grass was used to secure the fence apron.

Predator Control

When problems of rabbit enclosures are discussed with beaglers, the conversation eventually turns to predators. Four clubs apparently have no programs for predator control and another club has recently discontinued its predator control program. Eight clubs reported that they did conduct predator control programs; the programs are conducted by the club members without consultation or aid from state agencies.

Animals that are major targets vary by club and by location. Each club listed several species as their major targets. Owls were listed by eight clubs as a major target, six clubs listed both hawks and feral cats as major problems and four clubs recorded foxes as a target species. Groundhogs, although mentioned by several clubs as a problem in enclosures, were listed by only two clubs as being targets for control. Snakes and field mice were given as target species by one club.

Surprisingly, predator control is a recent part of the management program for the majority of the beagle clubs. Two clubs have had a control program in operation for five years and predator control programs of six other clubs have been in operation for less than three years with an average operational time of 1.8 years.

Annual costs of the predator control program are minimal for all clubs. The low cost is attributed to donation of time and traps by club members. Most clubs stated that expense was small or nonexistent.

The method of control is determined by the animals that are the major target of the beagle club. Pole traps are used by seven clubs, day shooting and livetrapping are used by five clubs while night-lighting was reported as a control measure by three clubs. (These above clubs indicated that the "night-lighting" was not spot-lighting and/or shooting predators at night but lights located around the enclosure).

Ground set steel traps are used by two clubs and poisoning by one. Because of the danger to beagles, these types of controls are not popular among beaglers. Deterrent devices are used by only one club; the type of device and method of deterring the predator were not detailed.

Table 1. Organizational Information for Beagle Clubs in Tennessee (and Vicinity) for the Field Trial Season, July 1, 1971-June 30, 1972

Beagle Club Name	Approximate Year organized	Number of Active Members	Annual Dues per Member	Location
Atomic	1952	50	\$ 5.00	Oak Ridge, Tennessee
Cherokee	1939	35	5.00	Cleveland, Tennessee
Cub Lake	1957	25	10.00	Byhalia, Mississippi
Cumberland	1969 ^a	20	10.00	Clarksville, Tennessee
Indian Creek	NR ^b	NR	NR	Pickwick Dam, Tennessee
Lawrenceburg	1967	25	5.00	Lawrenceburg, Tennessee
Memphis	1948	47	35.00	Memphis, Tennessee
Middle Tennessee	1949	39	12.00	Lebanon, Tennessee
Reelfoot	1947	40	5.00	Martin, Tennessee
Scenic	1956	38	10.00	Acorn, Kentucky
Sequatchie Valley	1953	35	5.00	Dayton, Tennessee
Smoky Mountain	1952	28	25.00	Maynardville, Tennessee
Tennessee	1931	27	10.00	Mercer, Tennessee
Tri-City	1952	30	25.00	Kingsport, Tennessee
Twin Lakes	1954	38	5.00	Mooreburg, Tennessee
Upper Cumberland	1952	15	12.00	Cookeville, Tennessee
Westmoreland	NR	6	NR	Lebanon, Tennessee

^aClub was reorganized in 1969.

^bNR - No Response.

Table 2 illustrates the number of predators killed annually by beagle clubs. Feral cats were listed by all clubs giving kill figures; these animals were highest in total numbers killed (32); owls followed with 27. A total of 110 animals were removed from eight enclosures in 1972. The range of animals removed annually per club was one to 36 animals (ave. = 3).

Effectiveness of the predator control program was ranked in the questionnaire as very effective, partially effective, and not effective. No club considered their control program to be very effective, two clubs reported that the control program was not effective, and the remaining clubs found their programs to be only partially effective.

Rabbits

As indicated by the response of thirteen clubs, stocking of rabbits by beagle clubs is considered a major management practice (Table 3); only one club has never released rabbits on its land. Two clubs indicated that the practice had been discontinued in the past two years; the remaining ten clubs release rabbits annually. The number of rabbits released annually per club ranges between 36 and 144 rabbits (ave. = 97). In 1972, 999 rabbits were released on 777 acres or approximately 1.3 rabbits per acre (Table 3).

Beagle clubs are inclined to stock rabbits prior to American Kennel Club licensed trials. Seven clubs listed November as the month in which rabbits are released, October by three clubs, December by four clubs, January by two clubs, and February by one club.

Rabbits are sold by suppliers in groups either sexed or unsexed. The sexed groups have specified numbers of does and bucks per dozen. Sexed groups of rabbits are more expensive than the unsexed groups. The majority of the clubs (8 out of 13) buy rabbits as a trap-run (unsexed) group. One club buys both sexed and unsexed groups and sexed groups of rabbits are released by three clubs.

The release of rabbits is usually in one large group. Ten of twelve clubs reported the release of rabbits at different locations on their land within one day, one club stocks rabbits at one location within one day, and one other club releases rabbits at different locations during several days.

Cost per dozen rabbits varies for each club. The cost of rabbits per dozen and rabbit distributors are listed in Table 3. The range in cost per dozen is \$30.00 to \$45.00. An average cost to a club per dozen was not determined because some clubs included shipping cost for rabbits while other clubs did not indicate shipping cost.

No club reported receiving diseased rabbits. However, only one club indicated that their rabbits for release were inspected by a veterinarian. Five clubs did not have any rabbits to die in shipment and seven clubs found only one to three rabbits per shipment dead. Death of rabbits immediately after release was not observed by any of the thirteen clubs.

A population estimate prior to release of new rabbits is made by seven clubs and six clubs make no attempt to determine the population before stocking rabbits. Those clubs that attempt to estimate the population use the number of rabbits jumped by flush lines as a means of estimating the population before stocking. Flush lines are operated during sanctioned trials or during a work period arranged with club members. One club indicated that time between jumped rabbit was used in the estimate of the population prior to release of rabbits. One club's estimate of the number of rabbits to release was based on the number of rabbits the club wanted per acre. Two clubs do not determine what number of rabbits should be released, but these clubs did indicate that rabbits were released on their land. Flush line counts are used by three clubs to determine the number of rabbits to be released (but not as a population estimate). One club uses the amount of feces, the number of runways, and the feeding habits along with flush

Table 2. Annual Kill of Predators by Beagle Clubs in Tennessee

Beagle Club Name	Gray Foxes		Red Foxed		Bobcats	Skunks	Hawks	Owls	Feral Cats	Feral Dogs	Others	Total
Atomic	2	0	0	0	0	10	0	2	10	0	0	24
Cherokee	1	0	1	2	12	2	0	12	6	2	0	36
Cumberland	0	0	0	0	0	0	0	0	1	0	0	1
Lawrenceburg	0	0	0	0	5	0	8	3	3	0	0	16
Middle Tennessee	1	5	0	4	3	4	5	5	5	0	0	23
Smoky Mountain	0	0	0	0	2	0	0	3	3	0	0	5
Tri-City	0	0	0	0	0	0	0	0	2	0	0	2
Upper Cumberland	1	0	0	0	0	0	0	0	2	0	0	3
Total	5	5	1	16	22	27	27	32	2	2	0	110

Table 3. Number and Cost of Rabbits Released by Beagle Clubs in Tennessee in 1972

Beagle Club Name	Annual Release (Dozens)	Groups	Cost/Dozen (dollars)	Distributor
Atomic	10	Unsexed	\$50	Meyers Wild Rabbit Exchange, Mo.
Cherokee	8	Unsexed	30	Earl Johnson Rago, Kansas
Cumberland	5-8	Unsexed	36	Jass Allen Jr. Big Lake, Texas
Lawrenceburg	3	Unsexed	24 ^a	Earl Johnson Rago, Kansas
Memphis	10	Sexed	40	Earl Johnson Rago, Kansas
Middle Tennessee	5	Unsexed & Sexed	30 & 45	Earl Johnson Rago, Kansas
Reelfoot	6-9	Unsexed	30	Earl Johnson Rago, Kansas
Sequatchie Valley	12	Unsexed	39	Earl Johnson Rago, Kansas
Smoky Mountain	6-8	Unsexed	30	Missouri Supplier
Tennessee	0-2	Sexed	36	Earl Johnson Rago, Kansas
Tri-City	12	Sexed	48	M.R. Myers, Kansas
Upper Cumberland	6	Unsexed	40	Texas

^a\$24 does not include shipping cost.

line counts to determine the number of rabbits to stock. The number of rabbits to be released are approximated by three other clubs, but no explanation was given for their estimates.

The number of dog applications received for licensed trials is used by three clubs to determine the number of rabbits to be released. The estimated number of rabbits for stocking for a successful AKC licensed field trial is based on past experience. The success of the AKC licensed field trial appeared to be the major reason for releasing rabbits for all clubs.

One club's secretary may have summarized the attempts to determine the population and the number of rabbits to be released. His club's estimate was based on "just a flying guess!"

An estimate of the population to be maintained on the club's land is made by six clubs, while seven clubs make no attempt to estimate a population to be maintained. The six clubs reporting specific population levels indicated they would like to maintain population levels ranging from two to four rabbits per acre (2.9 ave.).

The response to how the clubs determined the number of rabbits to be maintained was incomplete. Seven clubs stated that a specific number of rabbits to be maintained was not determined, and four clubs indicated a method similar to the response for estimating populations prior to release.

Months in which cottontail rabbits were run by beagles are presented in Figure 1. Running of rabbits is continuous throughout the year for five beagle clubs. Only one of these five clubs reported that rabbits are not run in their enclosure during the breeding season of rabbits. The range of months in which rabbits were run by beagles was four to 12 (ave = 9.6).

Only members are allowed to run dogs on their club's land. Nonmembers are allowed to enter field trials, and a guest can be brought to the running grounds to observe a member's dogs running. An average of 7.2 persons per club use the enclosures each week ($r = 4-15$).

Running rules for beagle clubs vary from limiting the number of dogs that can be run at one time to regulating the time when dogs can be run on the club's land before a field trial. The major rule for running on the club's land involves the number of dogs allowed to run at one time. Seven clubs have the regulation of brace running only, two clubs allow running of four dogs to a pack, two other clubs specify that two braces can be run at one time and packs of three dogs and five dogs are allowed to run at one time by two clubs, respectively. That dogs must be accompanied by a handler while running is a rule for six clubs; this rule is probably enforced by all clubs although it was not listed by the seven other clubs.

Three clubs specified regulations on time allowed a member for running his dogs; their time limit is one hour per member. One club listed five running regulations to govern the use of the running grounds by members; these regulations probably prevented monopolizing of the running grounds by members and gave each member equal opportunity to use the club's land. Running of rabbits on the club's land before a field trial is also regulated by three clubs.

Habitat

Although terrain varies across the state, six clubs described their land as having rolling topography. Five other clubs have rolling topography in combination with flat (2 clubs), hilly (2 clubs), and mountainous (1 club) terrain. The terrain of the two remaining clubs is primarily flat.

Vegetative cover differs greatly among clubs. Row crops are the least common cover type with pastures or old field being the major cover type on the club's lands. The percentage of forest cover ranges from zero to 33 (ave. = 9%). The

average cover for pastures or old fields is 54.8 percent ($r = 0-99\%$). Low shrub cover exhibited the most drastic variation between clubs; five clubs reported no cover in the form of low shrubs and one club listed low shrubs as covering 100 percent of its land (ave. = 23%). Only two clubs gave a percentage of cover for row crops (15 and 10% of the total acreage).

Twelve clubs plant food plots, and the one club which did not plant food plots planned to begin planting in 1973. Food plots are planted by club members themselves and spring and fall is the most frequent time of planting.

The number of food plots per club ranges from one to 27 (ave. = 8.6). An average of 5.2 acres of food plots are planted per club each year ($r = 3-8ac.$) with an average of .78 acres per 10 acres for all clubs. Food plots occupy between 3.5 and 15.6 percent of the total acreage available.

Total annual costs for food plots varies from \$40.00 to \$500.00 per club. This is a range of \$6.00 to \$100.00 per acre of food plot (ave. = \$29.00). Because all clubs indicated that members did planting, the cost estimate only included cost of materials.

Species planted in food plots are clovers, oats, grasses, peas, wheat, turnips, beans, and corn. Clover is planted by 12 clubs, seven clubs plant oats, grasses are planted by six clubs which include blue grass (1 club), rye grass (2 clubs), and orchard grass (3 clubs). Wheat is planted by four clubs, three plant Austrian winter peas, two plant turnips and corn and beans are planted by two clubs respectively.

Since cover is a major part of a wild animal's habitat, plans for improving cover are important topics of most management programs. Nine clubs indicated a program for improvement of cover on their lands. Improvement of cover for these clubs consists of liming, fertilizing, creating brush piles, rotating food strips, and mowing alternate strips of vegetation. One club has an extensive plan to improve habitat. This plan includes an interspersion of cropland (food plots), grassland, cut-over woodland, and brushland. Approximately one-quarter of the total acreage is in each of these cover types. Another club's program consists of planting autumn olive, multiflora rose, and serica lespendeza.

Farming is conducted on the land of only four clubs. One of these clubs does not have an enclosure, and a second club allows farming only outside its enclosure. Tobacco is grown on the land of three clubs, a fourth club grows cotton and soybean on its land, and cattle grazing is allowed by two clubs.

Trials

The competition of the field trial is a major reason for the existence of beagle clubs with the field trials being the major activity of each beagle club. A beagle club can hold three types of field trials. By definition of the American Kennel Club's Beagle Field Trial Rules (1971) there are member field trials, licensed field trials, and sanctioned field trials. The licensed field trial is a trial in which dogs compete for championship points. The clubs which hold a licensed field trial must be licensed by the American Kennel Club. A beagle club is limited to one licensed field trial each field trial season (one year beginning July 1). A member field trial is similar to a licensed field trial in that championship points may be awarded, but member field trials can only be held by a club which is a member of the American Kennel Club.

A sanctioned field trial is a trial in which championship points are not awarded competing dogs. The number of sanctioned trials per year is not limited, but each club must obtain the permission of the American Kennel Club to hold this type of field trial. A field trial must be sanctioned by the American Kennel Club if the trial is open to entries by nonmembers of the club (American Kennel Club 1971).

The number of trials held annually per club ranges from six to 22 with an

average of 11. Each beagle club holds one licensed trial each year. The dates of the field trials are given in Table 4. Sanctioned trials are run year-round by almost all clubs. Sanctioned field trials are governed by the same running rules as the licensed field trials.

A larger number of dogs is entered in licensed field trials than in sanctioned field trials. The range for sanctioned field trials per club is 10 to 45 dogs per trial (ave. = 27.7) while the range for licensed field trials is 150 to 275 dogs (171.1 ave.). Two derby trials held by one club have 30 and 35 dogs competing, respectively. Trial length (member, licensed, or sanctioned) lasts from one to three days.

The types of trials run by clubs are mainly licensed field trials and sanctioned field trials. "Club" or "fun" trials were listed by some clubs. Classification could not be determined for the "club" or the "fun" trials. Eight of the clubs listed types of competition instead of types of trials. The types of competition reported were braces and small packs. Large packs were also listed by the American Kennel Club (1971) as a type of competition but large packs were not listed by any club submitting a questionnaire.

Entry fees for field trials are charged by all beagle clubs. Licensed field trials have a higher entry fee per club with an average of \$5.19 per dog. Sanctioned field trials have an average entry fee per club of \$2.42 per dog. The range of entry fees is \$2.00 to \$3.50 per dog for sanctioned field trials and \$3.00 to \$6.00 per dog for licensed field trials.

Estimation of total cost to the club varies greatly, and a comparison between clubs was impossible. Apparently all trial costs are covered by entry fees. Costs include the purchase of trophies and ribbons, paying judges, and association fees. Five clubs gave a cost range of \$300.00 to \$1000.00 per licensed field trial (ave. = \$510.00). Sanctioned field trials are not as costly with an average expense of \$28.00 per club, and a range of \$20.00 to \$50.00 per club. These clubs did not indicate if the cost is gross cost or net cost. Total cost was given as 50 percent and 75 percent of the entry fees for two other clubs; another club reported that entry fees cover all costs.

SUMMARY AND CONCLUSIONS

The "typical" beagle club in Tennessee has 31 members, charges \$5.00 annual dues, and owns its own clubhouse and lands. This "typical" club also controls 84 acres with 60 acres under a rabbit-proof fence at a cost of \$29.00 per acre enclosed. Predator control is practiced with minimal success (13 "predators" removed annually) and not considered effective by the club itself. Ninety-seven rabbits are released annually or approximately 1.3 rabbits per acre at an approximate cost of \$38.00 per dozen. Rabbits are run by beagles 9.6 months out of a year and the club's enclosure is used by seven persons per week. Five acres of food plots are planted per year at a cost of \$29.00. Twenty-eight dogs are entered in each sanctioned field trial and 171 in each licensed trial at a cost of \$2.42 and \$5.19, respectively, per dog entered.

Bowers (1954) and Hill (1972) indicated a need for research on enclosed cottontail rabbit populations in Pennsylvania and Alabama. Few biologists have reported work on beagle club enclosures (Bowers 1967, Hill 1972). With fifteen clubs well distributed across Tennessee and with an estimated 500 active beaglers in the state for 1972, additional research would be justified for the benefit of beagle clubs and rabbit hunters as well.

The fifteen beagle clubs in Tennessee are evenly distributed across the state; four, five, and six clubs are located in West, Middle, and East Tennessee, respectively. Activity of clubs appears to be correlated with the club's control of land. Beagle clubs which do not own or rent land have the least number of active members; also these are clubs that failed to return questionnaires.

Table 4. Dates of the 1971-1972 Field Trial Season for Tennessee Beagle Clubs

Beagle Club Name	Licensed Field Trials	Sanctioned Field Trials
Atomic	Nov. 17-20, 1971	2/month Nov-Apr.
Cherokee	Nov. 25-28, 1971	1/month Jan-Dec.
Cumberland	Feb. 3-6, 1972	1/month Oct.-Dec.
Indian Creek	Nov. 11-14, 1971	NR ^a
Lawrenceburg	Dec. 11-14, 1971	1/month Jan.-Dec.
Memphis	Jan. 6-9, 1972	1/month Feb.-June, Sept.-Oct.
Middle Tennessee	Nov. 25-28, 1971	Sept.-May ^b
Reelfoot	Nov. 23-26, 1971	Sept.-March ^b
Sequatchie Valley	Nov. 11-14, 1971	NR ^c
Smoky Mountain	Oct. 28-31, 1971	2/month Jan.-Dec.
Tennessee	Feb. 24-27, 1972	1/month Jan.-Dec.
Tri-City	Oct. 21-24, 1971	1/month Jan.-Dec.
Twin Lakes	Sept. 30-Oct. 3, 1971	1/month Sept.-March
Upper Cumberland	Oct. 6-9, 1971	2/month Sept., Dec-May
Westmoreland	Nov. 4-7, 1971	NR ^a

^aNR - No response.

^bNumber per month was not given.

^cDates for sanctioned field trials were not given but this club held two Derby Field Trials February 15 and 25, 1972.

Although debatable as to their validity, the purposes of an enclosure for a beagle club are to hold rabbits in an area and to keep predators from taking the rabbits. Because an enclosure may be used to concentrate the population of rabbits for the purpose of successful field trials, beagle clubs will likely continue to build enclosures. It would seem reasonable to assume that beagle clubs are interested in increasing the life of an enclosure and in reducing maintenance. Fencing wire should be treated to prevent rapid corrosion of the metal. Also, treated wooden or metal posts should continue to be used to increase strength and to insure their time of usefulness. There will be a higher initial investment for fence installation, but the club will save time and money if the investment is considered over a period of years.

Erection of an electric wire on insulators above the fencing at the top of the posts will aid in deterring certain predators (i.e. feral cats and feral dogs) from entering the enclosure. Several clubs indicated the common problem of electric fences being inoperable a large percentage of time. Hill (1972) suggested a "weed chopper" feature to prevent growth of vegetation on the fence. The additional cost would be approximately \$20.00 but this feature would insure longer operational time.

The average beagle club enclosure in Tennessee is approximately 60 acres in size. Sixty acres of enclosed land for a beagle club appears to be excessive for the use of a single club. As indicated by the number of clubs that planned to divide larger enclosures, enclosures of 30 to 40 acres would be more appropriate for intensive rabbit management. Observations during field trials indicate that the smaller enclosures are adequate.

Although rabbits released into enclosures are a major annual expense for beagle clubs, and stocked rabbits increase the risk of introduced diseases and parasites to man, domestic stock, and native rabbits, the stocking of rabbits by beagle clubs was reported as a common practice for clubs located in the eastern United States (Bowers 1954, Bowers 1967, Hill 1972). The small increase in population density appeared to be poor justification for the expense and the risk which was incurred by stocking rabbits. Bowers (1967) found an increase of eight rabbits jumped per flushing hour 20 days after the introduction of 135 rabbits into a 100 acre enclosure. An estimated 17 percent of these stocked rabbits survived until late winter. A survival rate of 54 percent was shown for native rabbits on the same 100 acres (Bowers 1967).

Rabbits are released in October, November, December, January, and February. During these months the habitat is poorest in terms of its ability to accommodate an increased number of animals. Introduced rabbits may also reduce the carrying capacity of the habitat during the winter months by reducing food and competing for available cover.

The number of rabbits to be released was determined for several clubs by flush line counts. Hill (1972) indicated that although cottontail rabbits were numerous in August and September, flushing of rabbits was difficult in these months. Decreased activity by cottontail rabbits during these months gave an erroneous population estimate. Bowers (1967) indicated a greater number of rabbits could be jumped hourly by increasing the size of the flushing line rather than doubling the population by introducing more stocked animals.

A population density of 2.4 rabbits per acre was maintained in an enclosed area in Alabama (Hill 1972). Hill attributed this density to management practices which provided adequate cover and nutritious food throughout the year. Beagle clubs in Tennessee indicated that an average population density of 2.9 rabbits per acre would be desirable. It appears that, if habitat manipulation were intensively practiced by each club, a population density of this magnitude could be maintained by Tennessee beagle clubs.

Beagle clubs are located on old farm sites with continuous blocks of similar

vegetation (i.e., second growth hardwoods and old pastures) covering a large portion of the land. Byford (1972) and others have indicated that a dispersion of cropland, grassland, cut-over woodland, and brushland would be desirable habitat for cottontail rabbits; one-quarter of the land should be allotted to each cover type. Interspersion of these types of vegetation should be made to provide adequate food and cover for the entire enclosure.

Food plots were not sufficient for maximum population density. On the average 10 percent of the beagle club's land was in food plots. Food plots should be increased in number and placed near heavy cover to insure utilization. Plant species which supply adequate winter food should be included in these plots. Winter food and winter cover have been reported to be of prime importance in maintaining higher population densities (Bowers 1954, 1956, Bowers 1967, Byford 1972).

Running of rabbits during the spring and the summer was reported by several clubs. Hill (1972) suggested that running of rabbits during warm weather be minimized in enclosed areas. Running of rabbits during the breeding season may reduce productivity by causing stress to pregnant does with possible reabsorption of fetuses or even death of the doe. Pelton and Jenkins (1971) and Hill (1972) indicated that breeding usually begins in February with a peak in reproduction occurring in March, April, and May for cottontail rabbits in Georgia and Alabama, respectively. Running of rabbits in Tennessee should be reduced during the spring and early summer to insure better production of young cottontails.

Predator control appears to be impractical for beagle clubs because of the small number of predators removed. Adequate cover would seem more feasible for protection from predators. Hill (1972) indicated that limited predator control should be implemented to control feral cats. Feral cats and/or feral dogs were the major predators in enclosures used by The University of Tennessee for research on the cottontail rabbit (Brady 1973); control of these animals may be necessary.

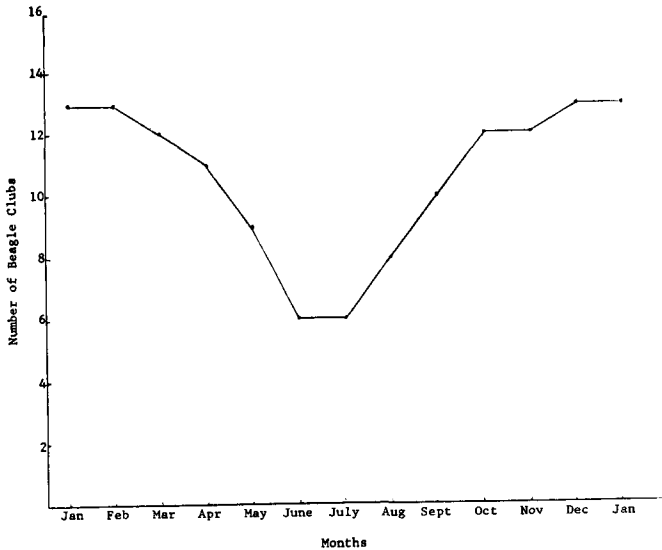


Figure 1. Months cottontail rabbits are run with beagles in enclosures of beagle clubs in Tennessee.

A primary interest of beagle clubs is to have a successful field trial. A successful trial is one in which large numbers of dogs are handled in a short period of time, adequate numbers of rabbits are jumped, and good chases occur. Too much cover and/or too few rabbits result in a less-than-successful trial and less participation and income for the club. Cover enough to sustain a population of 2-3 rabbits per acre may be too thick for a consistently high frequency of jumps and long chases needed for a trial in which large numbers of dogs participate over a short period of time. To get away from the predator control-stocking syndrome (and possibly even enclosures) beaglers must be willing to limit the size of their trials.

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