

PROGRESS REPORT ON FARM GAME HABITAT WORK IN NORTH FLORIDA

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Florida's Farm Game Habitat Restoration Project embraces principally that section of the state resembling other parts of the Southeast in general agricultural practices. This section extends from Pensacola eastward to Jacksonville, but does not extend far southward into Peninsular Florida. In north Florida conventional cultivation of row crops is the major land use practice. Farther south grazing, citrus production, and truck farming, of a nature peculiar to the area, are of more importance.

Corn, cotton, and peanuts are the crops most widely grown in north Florida. In some counties tobacco is of importance. Needless to say, constant cultivation of land to these crops soon renders the soil unsuitable for further cultivation unless some system of wise land use is practiced. This has not been the case in the past and as land becomes unproductive it is permitted to lie fallow as more land is cleared for cultivation.

Probably in no state in the Southeast do soils deteriorate more rapidly when cropped than in Florida. The two major reasons for this are the sandy texture of the soil and the high summer temperatures accompanied by excessive rainfall. During cultivation the organic matter is readily oxidized and minerals are rapidly leached out. Without restoration of the organic matter these sandy soils become relatively sterile and highly deficient in plant nutrients. It is often necessary to use as much as 1,000 pounds of commercial fertilizer per acre to produce a crop of average quality.

As more and more pine land is cleared before the plow and good arable land is more intensively cultivated, shortage of suitable cover becomes the limiting factor for farm game in some communities. On swampland and other lands that cannot profitably be cleared or cultivated and on fallow land there is a shortage of food. The overall picture is one of poor interspersion of food and cover in this section of the state.

There began in 1940 the organization of Soil Conservation Districts throughout north Florida. Following this the Game and Fresh Water Fish Commission entered into agreements with the Districts to provide food planting stock to cooperative landowners for farm game habitat improvement. This material consisted of bicolor lespedeza (*Lespedeza bicolor*) seed and seedlings and various seed producing annuals. The project had hardly begun when the war caused its discontinuance. Following the war, in 1947, I was appointed as project leader to continue with the project.

Because of the gaining popularity of bicolor lespedeza in the Southeast, one of the first duties assigned to me was an inspection of old plantings throughout the state. Results of this inspection were discouraging and it became doubtful at once as to whether bicolor was adaptable to Florida and could be used as successfully as in other southeastern states for habitat improvement. It was noted that most of the successful plantings were not bicolor, but were *Lespedeza thunbergii*. It was

decided that more plantings of bicolor be made and observed to see if it was adaptable to Florida and if not, why. Seedlings were distributed to landowners through the cooperation of the Soil Conservation Service. Also some thunbergii seed was obtained from Alabama and planting for seedling production. This year 234,000 thunbergii seedlings and 255,000 bicolor seedlings were distributed to landowners for comparative purposes. Most of the plantings made were inspected as to quality during the summer. Forty-two per cent of the thunbergii plantings were classified as good or excellent. All bicolor plantings were classified as poor or failures. Results with bicolor have been, and continue to be, discouraging in Florida.

It appears that thunbergii is more adaptable to Florida than bicolor. The primary reason for this is the fact that thunbergii seems to be a hardier plant and will better withstand adverse conditions common to Florida. Of these adverse conditions the sandy nature of the soil which causes high mortality during summer droughts and the low plant nutrient content of the soils appear to be of particular importance. Most soils are especially low in potash. Both the low moisture and low plant nutrient content are the result of the low organic matter content. It was at first believed that high summer temperatures was the limiting factor for the growth of bush lespedezas in Florida. This appears to be an indirect rather than a direct cause. The limiting factor is an edaphic factor in the form of organic matter rather than a climatic factor. Soils that are exposed to rays of the sun are low in organic matter and consequently low in plant nutrients and therefore will not produce lespedeza successfully without frequent and heavy applications of fertilizer. On poorly drained soils liming is necessary. Excellent thunbergii borders were obtained this year on sandy, poorly drained soils, but 600 pounds of 0-14-10 fertilizer and 1,000 pounds of lime per acre were required to produce them. These borders are on new land. Were they on formerly cultivated land low in organic matter and plant nutrients, it would no doubt have taken 1,000 pounds or more of phosphate and potash per acre to produce comparable results. Since the limiting factor for bush lespedezas has been determined, it is believed that they can be grown over much more of the state than was formerly concluded, providing the soil is properly fertilized and organic matter restored. As thunbergii is a hardier plant than bicolor and more able to withstand low soil moisture and fertility, it will be used exclusively throughout the state after next year.

Most land in Florida is subject to grazing. This factor tends to limit in scope the use in habitat improvement work of bush lespedezas or any other form of vegetation that is eaten by livestock. To be protected from grazing a planting usually has to be fenced. This is costly to the landowner. For this reason an extensive bush lespedeza program for the present appears to be impractical in the state. A large amount of effort has been directed toward discovering and developing means for using quail food plants that are not eaten readily by livestock. Two species of partridge pea, *Chamaecrista fasciculata* and *C. brachiata* show considerable promise. Both are natives of Florida. *C. fasciculata* is a native of north-central and north-west Florida. *C. brachiata* is a native of central Florida. The latter grows on infertile sandy soils and is believed preferable to the former, since it does not require as much soil fertility. *C. fasciculata* has been used extensively for wildlife plantings by the state of Alabama. We are now attempting to build up seed supplies of both species for distribution to interested landowners.

One of Florida's leading natural quail foods is Florida beggarweed (*Meibomia purpurea*). This large annual legume grows on land under cultivation. It grows profusely in many cornfields. A cornfield full of beggarweed is considered a paradise for quail, as every Florida bird hunter is aware. Attempts toward getting the species established more widely on cultivated lands are being undertaken by furnishing seed to farmers to plant in their cornfields. Seed is broadcast around the edge of the field following the last cultivation of the corn. This is the only amount of effort required by the farmer in order to get a good stand of beggarweed that fall. Once the soil becomes saturated with the seed a stand of beggarweed can be assured in the field thereafter at any time it is cultivated. It is a practical program as the plant is a good soil builder and serves as a cover crop in the field for the remainder of the year. Farmers are eager to get the seed. The Game and Fresh Water Fish Commission will have 500 pounds of seed available for distribution next year and could no doubt use several times that amount. One Soil Conservation Service technician informed me that he could distribute that amount in his county alone.

Another important quail food plant in Florida that can be used practicably on farm lands is common lespedeza (*Lespedeza striata*). Farmers are interested in obtaining seed to get it started on their land for grazing purposes. Food in woodlands can also be greatly increased by sowing the seed on firebreaks. As with the other lespedezas, it requires heavy fertilization with phosphate and potash, plus liming on poorly drained soils. We distributed 900 pounds of this seed for habitat improvement this year.

As mentioned previously, the limiting factor for quail over much of the agricultural land in Florida is the improper interspersion of food and cover. We are attempting to find a species that can be used practicably for cover plantings on areas where there is a shortage of cover. Two experimental plantings of multiflora rose were made in the state this spring. Additional plantings will be made for observational purposes next year. If it continues to show promise, we shall no doubt go into the multiflora rose business in the near future. The secret of its success in Florida appears to be a heavy application of nitrogenous fertilizer and mulching to hold soil moisture and control weed growth during the first year.

Florida's farm game habitat improvement work in the future will probably revolve around the use of thunbergii lespedeza, common lespedeza, partridge peas, Florida beggarweed, and perhaps multiflora rose. We are constantly striving to find ways to work plantings of these species in with a practical land use pattern on the farm. This seems to be a *must* before extensive habitat improvement on a large scale basis can be accomplished over the state.