

A FIELD STUDY OF THE COMMON BARBERRY

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During the past four years, the author¹ has studied the common barberry, *Berberis vulgaris* L., in a small area near Freedom, Owen County, Indiana. The investigation has concerned the number of sprouts from roots of destroyed bushes, the number of seedlings from seeds of the eradicated shrubs, the growth of sprouts and seedlings, the dissemination of the seeds, and the survival of seedlings from season to season.

The four barberries considered as the parent or original bushes were in a short row (about seven and one-half feet in length) on the south side of a pastured orchard and not far from a house. These shrubs were cut off about three or four inches above the ground, November, 1928. One of the bushes was estimated to be approximately thirty years old. These plants were growing on an upland area which slopes to the south and east. In the old ravine at the base of the slope are two springs, approximately 160-170 feet apart. No bushes have been found on the north-facing slope.

Each spring and fall since May, 1929, the author has visited the area and has carefully searched for seedlings, shoots, and bushes. The data are grouped according to the phases of the work and are arranged chronologically.

Data concerning seedlings and shoots from parent bushes and stumps:

Date	New Seedlings	Surviving Seedlings	Inflorescences on Shoots	Rusted Leaves on Shoots
May, 1929.....	Hundreds ¹	.....	.....	.....
Nov., 1929.....	0	7	.....	.....
May, 1930.....	55	1	.....	.....
Oct., 1930.....	0	0	.....	.....
May, 1931.....	0	0	1 ²	.....
Nov., 1931.....	0	0	0	.....
May, 1932.....	0	0	78 ²	365 ²
Oct., 1932.....	0	0	0	0

Parent Bushes. A large number of seeds in the parent area germinated the first growing season following the cutting of the shrubs. A great decrease in germination occurred the next spring, and no seedlings have been observed since that time. Possibly weather conditions have been unfavorable for the germination of any dormant seeds which might remain. Perhaps a large majority of the seeds have germinated.

¹ This investigation has been made in co-operation with W. E. Leer, U. S. Department of Agriculture, State Leader of Barberry Eradication in Indiana.

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During the first year following the destruction of the parent bushes, numerous, healthy shoots were produced by each stump. These have developed into very conspicuous bushes, varying in height from three and one-half to six and one-half feet. The first inflorescence developed on these shoots during the third spring succeeding the destruction of the parents, and the first leaves showing infection with *Puccinia graminis* were noted the next year.

Bushes on the Slopes. Since the barberry bushes on the slopes were younger, (approximately five to ten years of age), than those near the house, it is assumed that the birds may have carried fruits from the parent plants to their roosting places in the trees and shrubs on the slope, or they may have dropped them as they flew to the springs for water. It is also possible that the seeds were discharged from the alimentary canal of the birds or were coughed up and dropped. The bushes, shoots, and seedlings were usually found among the rocks where the fruits and seeds may have lodged or beneath the trees where the birds may have lighted.

In November, 1929, one bush was transplanted by Indiana University to the campus for experimental purposes. During the year 1931, four shoots, ranging in height from two to fifteen inches, were collected from the remaining underground parts of this plant. During this study, no seedlings or other shoots have been observed in this specific area.

Twenty-one large bushes were growing here and there over the south- and east-facing slopes and were located on imaginary radii extending northwest, north, and northeast from each of the springs in the ravine. Inflorescences, fruits, and rusted leaves were found on these plants. In May, 1930, all of these barberry bushes were salted and killed.

In October, 1930, two groups of seedlings, ranging in height from seven to nine inches, were found on the south-facing slope. There were five plants in one group and three in the other. Probably fruit clusters had fallen here and the seeds germinated after lying in the ground for a period of time.

In November, 1931, three shoots, two to twenty inches high, and three seedlings, one to three inches in height, were collected near dead barberry bushes.

No seedlings or shoots have been found since that date. The fruits and seeds, more or less buried, have remained dormant for different periods of time, thus accounting for the variation in the development of the seedlings.

SUMMARY

1. The parent plants of *Berberis vulgaris* were destroyed in November, 1928.
2. The greatest number of seeds germinated the following spring.

¹ No effort was made to count the seedlings because the ground in the vicinity of the parent bushes was carpeted with them.

² All inflorescences and rusted leaves were collected as they were counted.

3. A very great decrease in the number of seedlings occurred the second season and no seedlings were noted thereafter.

4. The number of seedlings which survived was exceedingly small in comparison with the number produced.

5. The shoots from the parent stumps developed flowers when they were two years of age.

6. The first infection by *Puccinia graminis* was observed when these shoots were three years old.

7. These shoots grew to a height of three and one-half to six and one-half feet during the four growing seasons.

8. The fruits and seeds have probably been disseminated by birds.

DEPAUW UNIVERSITY ARBORETUM

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For the purpose of establishing an arboretum and a wild plant sanctuary, the Botany Department of DePauw University has recently acquired an area of twenty acres, commonly known as Monon Springs, one-half mile west of Greencastle, Indiana.

The proximity to the campus, the meandering stream, the springs, the various slopes, the lowland and upland, the rock outcrops, the excellent variety of woody and herbaceous plants, and the presence of representatives of all divisions of the plant kingdom—all of these aid in making this plot a splendid out-door laboratory for the botany classes of the University.

The vegetation is representative of a climax association. An unusually large number of species of plants were growing in this particular area at the time of the purchase. Within the last few months 150 trees, a large majority of which are uncommon in this part of Indiana, have been added.

Extensive plans for the development of the DePauw University Arboretum have been made. It is proposed to introduce as many species of plants native to Indiana, both woody and herbaceous, as will grow in the area. It is hoped that eventually the arboretum may become of considerable scientific value to botanists interested in our native flora, as well as serve the classes of the department in field work.