Arboretum news. Volume 3 1954

THE UNIVERSITY OF WISCONSIN

ARBORETUM NEWS

Vol. 3, No. 1 Madison, Wisconsin January, 1954

Another Desiccated Autumn

The fall of 1953, like that of 1952, was notable for its dryness. The last three weeks of August were exceptionally hot and dry, followed by a moderate rain and lower temperatures the first week in September. However, from that time until Nov. 19th there was no precipitation of any consequence, and temperatures were above normal most of the time. As in 1952, the Arboretum luckily escaped any serious fire. The one alleviating circumstance was that, in general, drying winds were less frequent and strong than in 1952. In this connection, toward the end of the drought period a jet plane from Truax Air Force Base at Madison crashed in the Arboretum, burying itself in the wet, marshy soil at the edge of Lake Wingra. No fire resulted, but had the crash taken place in the drier part of the area a serious conflagration would probably have occurred.

Plants in a Winter Landscape

G. Wm. Longenecker

The Spring Trail Pond area was a glorious sight a few mornings ago. Hoarfrost covered every tree and bush, every blade of grass. Twigs and branches were magnified in their white coats, clustered with diamonds when the sun's rays played on them.

Later in the day the area was still beautiful, but in a more subtle way, and went comparatively unnoticed by most passersby. The sun had come out and taken away the glitter and white of the hoarfrost, but the landscape, while having the same composition as before, was now painted with delicate colors, lovely grays and browns, and delicate reds.

Some people are very conscious of and enjoy these subtle colors and textures of a winter landscape. The Arboretum, with its natural landscapes, is an excellent place for such enjoyment. It is also used as a study area during the winter months by students majoring in Landscape Architecture at the University to acquaint them with the winter aspects of plants and plant composition.

When one really sees a winter landscape he will find the delicate colors and interesting textures blending or contrasting with each other and in pleasing composition with earth and sky. Thus, a winter landscape can be beautiful or it can become an uninteresting "hodge podge" if the designer is not conscious of winter colors, plant textures, winter plant outlines and silhouettes.

Most of the trees and shrubs have no leaves now, and we miss them, but winter is a time when we can see tree and shrub character which can only be guessed at during the summer when they wear their camouflage of leaves. Texture is intensified and made even more obvious when branches and twigs are covered with hoarfrost, ice or snow. When this happens the Arboretum becomes a photographer's and artist's paradise, and on most snappy, cold mornings the area around the Spring Trial and the Stevens Ponds is well worth a visit.

Here, near the ponds, can be found plantings of some of the better native shrubs and trees. Here can be seen Hawthorns with broad tops and intricate, gray brown horizontal branches which blend especially well with the reddish-tinged stems of the Redosier Dogwoods near the pond and on the marsh beyond. Here too, on higher ground, can be seen Prairie Crabapples with their interesting structure and silvery gray branches combining well with the gray stems of the gray dogwood, and the darker brown ones of the Arrowwood Viburnum and the reddish-green, arching canes of the Prairie Rose.

Up near the wall can be seen the Smooth Sumac with its winter texture pattern made by the coarse stems topped by the heavy maroon-red seed plumes. They are in contrast to the comparatively finer stems and brighter red fruits of the American Cranberrybush Viburnum nearby. If one's gaze wanders down toward the Stevens Pond, along the shore can be seen the round, brown seed balls, still on the Buttonbush and lending their interesting pattern to this winter landscape.

Most people are aware of the evergreens and their beauty in winter, their green in contrast to the snow, their glory when they are covered with hoarfrost sparkling in the sunlight. This is truly a gorgeous sight, but one should not overlook the subtle beauty which is around us to enjoy, the beauty of trees and shrubs bare of leaves – etchings in the winter landscape.

Plantings in the Arboretum in 1953

Mr. Jacobson, Arboretum Superintendent, has provided the following account of plantings of woody species made by the Arboretum labor crew under his supervision.

A new area of about 5 acres, south of the Teal Pond, was planted to 1500 black spruce and 1000 white fir. This is a low-lying site with a heavy sod, and it was scalped (i.e., de-sodded at planting spots) in October 1952 with the tractor scalper. This new plantation connects the tamaracks around the Teal Pond with the white spruce planting farther south. In 1954 more trees will be put in here.

The following species were added to already established plantings: 1000 white spruce, 250 arborvitae, 400 hemlock, 2500 white pine, 2500 red pine, 1200 jack pine, 400 beech, 1500 sugar maple, 500 red maple, 200 soft maple, 100 American elm, 50 black walnut, 25 honey locust, 200 river birch, 500 white birch, 500 yellow birch, 100 basswood, 75 sassafras, 75 sweetgum, 25 black gum, and 75 tulip tree for a total of 12,175. In addition, the following species with hard-coated seeds were planted, using stratified seed, i.e., seed carried over the preceding in soil at outdoor temperatures. Counts were not made, but numbers were high, as indicated by the volume measures: 1 bushel bur oak acorns, 1 bu. black oak acorns, ½ bu. white oak acorns, ¼ bu. red oak acorns, 2 qts. hazelnuts, 3 qts. hickory nuts, and 1 qt. wild black cherry pits. Besides this, a rather large number of stratified acorns of swamp white oak were row planted in the nursery, with good results, with a view to transplanting in the spring of 1954.

A collection of Viburnums has been started on a site adjacent to the Nakoma golf course and Manitou Way, close to where the latter intersects Nakoma Road.

About 100 sizeable shrubs, distributed among the following species, were planted in 1953: Viburnum dentatum, V. lantana, V. molle, V. opulus, V. opulus sterilis, V. trilobum, V. lentago, V. pubescens and V. sargenti. This is to be a named collection for display purposes, similar to the lilacs.

Lesser numbers of various species were set out on different sites throughout the Arboretum. These included flowering crabs, ornamental apples, magnolias, lilacs, forsythias, roses, plums, cherries, hawthorns, hackberries, holly, ninebark and viburnum. Four sections of the fenced nursery were planted up with seedling stock from the nursery seed beds.

Seeds of the following species of woody plants were gathered during the season of 1953, mostly in substantial quantity: tamarack (Larix laricina), white spruce (Picea glauca), balsam fir (Abies balsamea), arborvitae (Thuja occidentalis), black walnut (Juglans nigra), yellow-bud hickory (Carya cordiformis), shag-bark hickory (C. ovata), white birch (Betula papyrifera), red oak (Quercus borealis), black oak (Q. velutina), white oak (Q. alba), bur oak (Q. macrocarpa), pin cherry (Prunus virginiana), choke cherry (P. virginiana), wild black cherry (P. serotina), sugar maple (Acer saccharum), soft maple (A. saccharinum), white ash (Fraxinus americana), gray dogwood (Cornus femina), alternate-leaved dogwood (C. alternifolia), redbud (Cercis canadensis), witch hazel (Hamamelis virginiana), sycamore (Platanus occidentalis), star magnolia (Magnolia stellata), arrow-wood (Viburnum acerifolium), (V. dentatum), nannyberry (V. lentago), and high-bush cranberry (V. opulus).

Mr. Dave Archbald, Arboretum Botanist, reports the following additional items concerning plantings:

About 1500 herbaceous plants representing 29 species were purchased for the various plant communities of the Arboretum. These plants were set out in the Leopold Pines, maple-beech woods, maple-hemlock woods, southern hardwoods, oak-hickory woods, the tamarack bog, as well as a few on the prairie. Some species were planted in the woods nursery in limited numbers. When these have reproduced sufficiently the progeny will be transplanted to the various hardwood communities.

The stratification of seed in the winter of 1952-53 for prairie reestablishment purposes was discussed in the April 1953 issue of this publication. The 110 pounds of seed, made up of 62 different prairie species, was broadcast as scheduled in the spring of 1953. Much of it was applied to two additional acres, newly incorporated in the prairie. As this new area was started from "scratch" a favorable seed bed could be prepared by discing and dragging, because there were no desirable plants, which would be damaged by such procedures, on the area. A cover crop of oats was sown to reduce weed competition, and application of prairie seed was generous both as to number of species and quantity of seed. This spring, 1954, the area will be burned as an added measure to reduce weed competition. Two other sites are receiving somewhat similar treatment. One was an old, weedy fence-row and the other a ditch caused by erosion. Combined, about two acres are involved. As both areas presented irregular terrain and were dominated by weeds, a highway grader was used to level them. After discing, the areas received a third of a ton of prairie hay plus a seeding of winter rye. The hay reduces the chance of erosion, and in addition contained much prairie seed. These operations were carried out in October 1953. This spring a liberal sowing of stratified prairie seed will be made, and in the spring of 1955 the technique of early spring burning will be employed. It is expected that these "wounds" on the landscape will heal in a few years, and will then enhance the general beauty and utility of the adjacent prairie.

Other Items of Interest

1) Mr. Jacobson, our Superintendent, has moved from the Arboretum to a home on the west side of the city, not far from the Arboretum, and Mr. and Mrs. Ben Berg are now occupying the quarters vacated by the Jacobsons. Mr. Berg, an Arboretum employee, is a skilled carpenter, mechanic, and general handy man. Last fall he did a highly professional job of shingling the walls of the shop, and one or two of the smaller buildings as well, thus greatly improving their weather resisting qualities and general appearance.

2) Mr. Jacobson reports seeing an American eagle near the Arboretum headquarters on several occasions recently. He states there are a number of robins and mourning doves wintering in the same vicinity and he has also noted a few evening grosbeaks. A covey of quail has been seen in the Grady Tract.

3) The 1953 Arboretum Seed Exchange List offers seed of 229 different species of native plants, distributed among 53 plant families. Fifty-seven species were collected in the forest, while 172 are from prairies and oak openings. The four-page list was mailed out in early December to 221 corresponding institutions, and at this writing, late in January, a number of requests for seed have been received, and some seeds have come to us in exchange.

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ARBORETUM NEWS

Vol. 3, No. 2 Madison, Wisconsin April, 1954

More on the weather

The weather is a primary and continuing concern of all those who manage land and the things that grow on it. This applies whether they be "dirt" farmers or botanists and horticulturalists endeavoring to develop an Arboretum. The winter of 1953-54 was exceptionally dry, largely lacking in snow or other precipitation. In general, dry conditions have prevailed since the season of 1952 and a definite subsurface moisture deficit has arisen, leading to poor conditions for our tree planting program. There has also, of course, been a continuous fire hazard. As this is written some good spring rains have fallen which, if continued into May, should do much to alleviate the situation.

Report of the Board of Visitors

The University Board of Visitors in their annual report, submitted to the Board of Regents on April 10, 1954, kindly praised the University for its effective use of the Arboretum, "a great outdoor laboratory for research and teaching, and practical demonstration in many fields". Those of us most closely associated with, and responsible for, the development of the Arboretum deeply appreciate this favorable notice, and hope that we shall continue to merit it.

Fire in the Grady Tract

The much-feared fire, anticipated so often and so long during the past two dry years, occurred at last on March 8, 1954. It was the direct result of the admitted negligence and bad judgement of employees of the C. & N. W. R. R. whose choice of this day to carry out their practice of burning off their right-of-way could not been have worse. Following the dry winter, February and early March had abnormally high temperatures,so that all dead vegetation was so much tinder. There was also a strong southwest wind in the afternoon of March 8, but despite all these factors the burning of the right-of-way, which forms the south boundary of the Grady Tract, was attempted. According to the section crew, the burn was started on the south side, across the tracks from the Grady Tract, and was "under control", until the strong wind lifted tufts of burning grass to the north side and promptly started a fire which was not brought under control until about 70 acres had been burned, with the destruction of many oak trees. That the entire Grady Tract, with its pine plantings in the north part, and very possibly all the rest of the Arboretum, did not go up in flames was due to quick and effective action by firemen from Madison's No. 7 company and companies from the Town of Madison, Blooming Grove, Verona and Oregon.

The following account of the fire appeared in the Wisconsin State Journal for March 9

"Five fire companies, plus scores of volunteers, battled the Arboretum fire for five hours before bringing it under control about 7:30 P.M. The flames apparently spread from a grass fire started by North Western railroad section workers along the Montfort spur track near the Fitchburg Road . . . . . .

"Fanned by strong winds, the fire raced across the old Grady farm part of the southwest Arboretum in a 500-foot-wide path toward the West Beltline and into the woods of the William Williams farm.

"The fire companies cut Arboretum fences to drive their trucks to the heart of the blaze. Several times the men and equipment were surrounded by flames, but none was injured.

"Traffic jams on all roadways in the area were caused about 6:30 P.M. when nearly 1000 townspeople responded to a call for help broadcast and telecast at Sheriff Franz G. Hass' request. Hass heard on the police radio that University police said the fire was again spreading out of control. However, Town of Madison firemen quelled the new outburst of flames and the volunteer fire-fighters were not needed. University Arboretum personnel stood guard in the area all night."

Following the fire, Supt. Jacobson and others spent considerable time assessing damages, for the purpose of presenting a bill to those responsible. Damages will be based on cost of dead and damaged trees (horticultural and lumber value), cost of removal of down trees, cost of repairing fences, and the cost of the damage done by the passage of heavy fire trucks over the soft soil of research areas. The railroad is currently engaged in replacing the right-of-way fence, which burned down. Metal poles are being used in the new fence.

About ten days after the fire in the Grady Tract a potentially even more serious conflagration was narrowly averted because, through sheer good luck, Professor Curtis, Arboretum Research Coordinator, and a group of his students happened to be in the near vicinity at the time the blaze got under way. This fire resulted from burning trash which had been left unattended in the rear of the home of J. C. Mallatt, 1505 Winslow Lane, adjacent to the Noe Woods, which in turn is adjacent to the Leopold Pines, our principal pine woods. The fire was burning strongly in the dry leaf litter at the time it was discovered. A fire alarm was turned in and equipment from the Town of Madison and the City of Madison responded. The blaze was soon

checked, but had it burned undiscovered for only a few minutes longer it seems certain that it would have spread to the pine plantings and perhaps burned over the entire Arboretum north of the Beltline Highway, with great danger to adjacent residential property. The unthinking carelessness responsible for situations of this sort cannot be too strongly condemned.

The aerial photograph of the burn in the Grady Tract was taken a few days after the fire by Dave Archbald, Arboretum Botanist. For orientation, north is at the top of the picture, Lake Monona is at the top right, the east part of Lake Mendota at the top left, while below Mendota is Lake Wingra. Southwest of Wingra lies the Nakoma golf course, and east of that is the older part of the Arboretum. Slightly above center and running toward the top right is the West Beltline Highway, and immediately south of that, bounded by the Fitchburg Road on the west and the C. & N. W. R. R. on the south, is the Grady Tract. The outline of the fire is plainly evident. Toward the bottom left corner can be seen where the burn was started south of the track, which it then jumped into the Grady. The large rectangular area extending into the burn is the site of oak plantings which have been made recently and will be brought into a more natural outline by further plantings this year. Just above the intersection of the Beltline and Fitchburg Road is the Noe Woods, and east of that the Leopold Pines, endangered by another fire ten days later.

The Leopold Pines

This twenty-five acre stand, dedicated a year ago to the memory of Professor Aldo Leopold, is one of the most successful of Arboretum enterprises to date. Major credit for this is due Prof. G. W. Longenecker, present Arboretum Director, who drew up the plans and supervised the planting.

The first plantings, of trees which were even then of rather large size, were made about twenty years ago, but most of the trees were set out in 1936 by crews from the CCC camp then established in the Arboretum. Two species, white pine (Pinus strobus) and red pine (Pinus resinosa), were used, planted together in such a way as to create as natural an effect as possible, and not on a mathematically exact grid plan as is done so frequently in artificial pine plantations. The result today is a pine woods which looks like those found occurring naturally in the north. The largest white pines are now a foot in diameter and over forty feet high, and the rest are rapidly catching up to them. In northern Wisconsin pine stands often have red maples growing mixed with them, creating a spectacular fall coloration effect, and Professor Leopold sought to duplicate this by having red maples interplanted in our woods. This failed, however, because of the high rabbit population, whose relentless winter browsing frustrated all efforts at protection.

Numerous small openings were left by design when the trees were set out, and it is interesting to note that these have been spontaneously taken over by the white field chrysanthemums, so commonly and extensively associated with pines in the north. As a result of leaching under the heavy needly cover great soil changes have been and still are taking place, so that in time the soil will duplicate that of say, Vilas County, and therefore should support the same flowers and herbs that grow under pines in the north.

On this assumption we have started a program of underplanting the pines with a number of these species, in the expectation of ultimately getting a strong representation as the soils became better and better adapted. So far used, with varying success, are "florist's fern" (Dryopteris spinulosa), star flower (Trientalis americana), trailing arbutus (Epigaea repens), pipsissewa (Chimaphila umbellata), pink lady slipper (Cypripedium acaule), fringed polygala (Polygala paucifolia), wintergreen (Gaultheria procumbens), partridge berry (Mitchella repens), and Clintonia borealis.

A narrow trail has been cut through the Leopold Pines, so that interested people will have access to them in advance of the time, not so far away, when "natural pruning" of the dead lower branches will make it possible to wander at will throughout the woods. When the wind is from the north, muffling the noise of the nearby Beltline Highway, one can momentarily gain the illusion of being isolated in the far-off north woods!

Loss of a staff member

Dave Archbald, Arboretum Botanist since 1949, is receiving his Doctor's degree in Plant Ecology in June and has accepted a research position with the United States Rubber Co., which will take him to Sumatra, in Indonesia, for a three-year period. Dave has carried on his degree research on the Arboretum, studying the relations between native prairie grasses and prairie legumes. He has been an aggressive and competent worker and will be hard to replace.

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ARBORETUM NEWS

Vol. 3, No. 3 Madison, Wisconsin July, 1954

Still more on the weather

The Madison area had an exceptionally cold and late spring, with somewhat deficient precipitation. The display of lilacs was late and not as good as in some previous years, and our regular spring planting program was decidedly delayed. Since the middle of June, however, there has been an excess of both hot days and wet weather, and this has resulted in pushing growth to the point where many things which got off to a slow start are now ahead of their normal schedules. It appears that it will be another good seed year, always desirable to us engaged in plant development and restoration projects.

New Arboretum Botanist

Mr. Roy E. Shake, who comes to us from Eastern Illinois State College, has been engaged to replace Arboretum Botanist Dave Archbald who, as noted in the April number, has received his degree and has accepted a position in Sumatra. Mr. Shake plans to carry on degree work in Ecology in the University of Wisconsin Botany Department.

Arboretum Journal Papers

A list of twenty-four papers in the Arboretum Journal Series was published in the January 1953 issue of the Arboretum News. Two more have appeared within the last year, as follows:

25. Curtis, J. T. & H. C. Greene. Population changes in some native orchids of Southern Wisconsin, especially in the University of Wisconsin Arboretum. Orchid Jour. 2: 152-155.

26. Greene, H. C. & J. T. Curtis. The re-establishment of prairie in the University of Wisconsin Arboretum. Wild Flower 29: 77-88. 1953. Photographs.

SOILS OF THE ARBORETUM

A General Discussion

Francis D. Hole[1]

The soils of the University Arboretum extend as an almost continuous blanket on the surface of about 1122 acres of land (exclusive of roads and bodies of water). In 1951, Dr. J. L. Retzer, a soil surveyor, arbitrarily divided the soil continuum of the Arboretum into about 65 fragments, or bodies, on his map. Each soil body is one to five feet thick, with an average area of about 17 acres. A soil body may be said to have the shape of a leaf, but with extreme variability in outline, in departure from flatness of form, and in smoothness or roughness of the upper and lower surfaces. Dr. Retzer classified the sixty-odd soil bodies into nine soil series, such as the Carlisle, Brookston, and Crosby soil series. A soil series name, like the name of a person, is associated with a complex of characteristics and conditions. We may consider the general nature of these complexes under three headings: 1) Geologic parent materials of soils, 2) water, and 3) organic matter.

Soil materials. The Arboretum is underlain by upper Cambrian strata, chiefly sandstone, over which glacial drift and loess were deposited during and following Cary or middle Wisconsin time. Some exposures in the uplands show about 20 feet of cross-bedded sand and gravel, overlain by 10 feet of dolomitic sandy loam glacial till, which is in turn capped in places (area 4 on the map) by three feet of weathered loess. In the lowlands are imperfectly and poorly drained mineral soils (areas 2 and 3 on the map) developed in two or three feet of silty material overlying stratified sands. Bedrock comes to the surface on a slope overlooking the southwest end of Lake Wingra.

Water. Subsurface water and topography have affected the soils by determining their relative natural drainage conditions. Peat and muck occupy 31% of the land area; wet black mineral soils, 13%; imperfectly drained silt loams, 16%; rolling silt loams and loams, well drained, 34%; and hilly sandy and gravelly loams, droughty, 6%. If one calculates the average natural drainage condition of the soils by area on the basis of a scale ranging from -10 for very droughty soils

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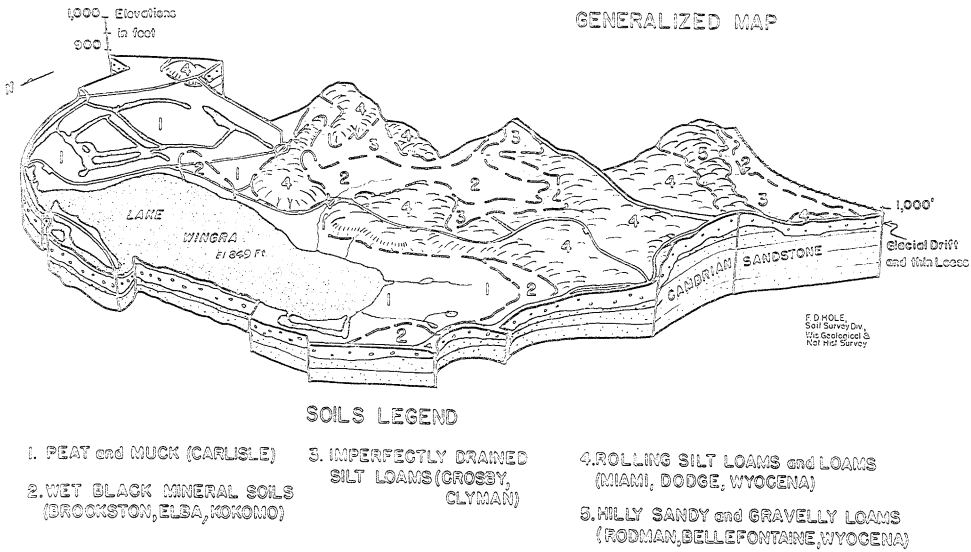
[1]Mr. Hole is Associate Professor of Soils, in Charge of the Soil Survey Division of the Wisconsin Geological and Natural History Survey. He is a member of the University Arboretum Committee.



to +10 for wet muck*, the Arboretum is found to have a natural soil drainage index of +3.28. This is considerably wetter than both the unglaciated counties of Wisconsin, where +0.1 is a typical index, and the glaciated counties, where +1.5 is a typical index. The location of the Arboretum near Lake Wingra accounts for the unusually high proportion of wet soils. Over a period of some ten thousand years, subsurface water has accomplished the vertical and horizontal eluviation or clay-movement through the soil bodies. In this manner clayey subsoils on the uplands and topsoils in the lowlands seem to have been produced. Surface water has recently made deposits covering 14% of the land area of the Arboretum.

Organic matter. Organic matter occurs over the mineral soils as a surface blanket, which is three or four feet thick in the muck bodies and a fraction of an inch thick on the upland soils. Organic matter also occurs incorporated into the upper portion of the mineral soil profiles. This darkened surface layer, or A_1 soil horizon, is as much as 18 inches thick in the wet black mineral soils, and thins to 2 or 3 inches in the well-drained upland soils. Where prairie has been artificially reestablished on the uplands, the thickness of the A_1 horizon is increasing. Cultivation of 37% of the Arboretum took place between 1860 and 1942. Plows incorporated organic matter into the upland soils to a depth of about seven inches. This plow layer is still evident under the 20-year-old pine plantation.

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*See "Suggested Terminology for Describing Soils as Three-Dimensional Bodies", F. D. Hole, Proceedings, Soil Science Society of America, Vol. 17, pp. 131-135, 1953.

Nesting habits of wood ducks

Russ Pyre, in his weekly column "Our Town" in the Wisconsin State Journal for Sunday, June 27, 1954, published the following item:

Secret is Out

The entire University of Wisconsin Arboretum Committee conspired this spring with J. R. Jacobson, arboretum supervisor, to suppress a big piece of news, until last week.

Then the need for secrecy ended when a mother wood duck, who had set up housekeeping in the most unlikely spot in the entire 1,200-acre reserve, came off her nest with 13 ducklings.

The arboretum crew has put up boxes in trees at strategic spots throughout the area to provide nesting places for wood ducks, but this pernickety duchess - we mean duckess - ignored them.

Instead she built her nest in an open slot in the insulating of a water pipe that leads from the ground to the elevated water tank in the old CCC camp area.

The nest thus was about two feet off the ground, a few yards from the open space where the working crew parks its trucks and cars.

So the wood duck's family incubation procedure has gone on for several weeks, in full view of anybody who might visit the Arboretum headquarters area.

But the public wasn't invited, because the Arboretum folks didn't think a lot of visitors would be good for the duck.

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Vol. 3, No. 4 Madison, Wisconsin October 1954.

Autumn 1954

The fall of 1954 in the Madison area has been very different from those of 1952 and 1953, both of which were characterized by extreme dryness and fire hazard. As of the first week of October rainfall was six inches ahead of average, and predictions were for below normal temperatures and above normal rainfall for the rest of the month. To more fully ensure proper dormancy of plants it is to be hoped there will be a bright, dry period before really cold weather sets in. The past growing season has been an excellent one so far as native plants were concerned, and the late-blooming gentians and fragrant ladies' tresses responded to the fall rains with an outstanding display.

Recent Visitors to the Arboretum

Professor John C. Wister, head of Swarthmore College's Tyler Arboretum and President of the American Association of Botanical Gardens and Arboretums, was a late summer visitor in Madison. The University of Wisconsin Arboretum was one of a series seen by him on a transcontinental survey.

The regional meeting of the American Society of Landscape Architects, with representatives from chapters in Wisconsin, Iowa, Minnesota, Michigan, Illinois and Indiana, was held in Madison October 1-3. A conducted tour through the Arboretum was a feature of the program.

New Restricted Parking Area and New Footpath

A small parking area has been established for the convenience of research personnel working in and about the Wingra Marsh. This area is just above the far southwest end of the marsh, well off the drive, and screened from it by tree plantings. Eastward from the area a path has been extended above the marsh to connect with the path leading to Wingra Springs, thus providing a convenient and pleasant way for pedestrians to by-pass a considerable portion of the heavily traveled drive. It is now possible to stay on footpaths from the east end of the Wingra Woods to the vicinity of the lilac plantings.

New Area for Small Shrubs

As an extension of the horticultural plantings, in charge of Prof. Longenecker,

a new area is being started east of the lilac plantings for the demonstration and study of small, low-growing shrubs, for which there is currently a great demand and a short supply, due to the vast numbers of low "ranch" style homes that have been erected in the last seven or eight years. Nurserymen have had to revamp their entire program of shrub plantings, and it is hoped that this new area will be of interest and value both to the general public and to professional nurserymen.

Arboretum Journal Series

The latest addition, No. 27, to this series of published scientific papers, based on research carried out entirely or in large part on the Arboretum, is by Prof. J. T. Curtis. It appeared during the summer in the Bulletin of the Torrey Bot. Club 81: 340-352. 1954 and is entitled "Annual flucutations in the rate of flowerproduction by native Cypripediums during two decades."

Plantings in the Aldo Leopold Pine Forest

Roy Shake, Arboretum Botanist, has given us the following account of work carried out by him and the labor crew under his direction in the Leopold Pines in the Arboretum this past summer.

For a depth of fifteen feet on either side of the path through the pines the trees were trimmed to give a tapering effect, away from the path. Those closest to the path were pruned to a height of seven feet, down to three feet for those farthest in. The tapering gives a look of added depth to the forest, as viewed from the path, but the main reason for doing it was to allow more light to enter so that plants could be introduced to the forest floor, with enough light to grow and reproduce successfully.

The forest floor has very little cover, except for a heavy layer of pine needles. It is our plan to introduce plants which are characteristic of the association, and which we feel are likely to spread fairly rapidly. To make a start in carrying out this project, arrangements were made with the Wisconsin Conservation Department to obtain and bring back to Madison plants from the Trout Lake area in Vilas County.

The plants, with sods, and their numbers are: wintergreen (Gaultheria procumbens) 136; hepaticas (Hepatica americana) 11; trailing arbutus (Epigaea repens) 73; bunchberry (Cornus canadensis) 5; star flower (Trientalis borealis) 2; barren-strawberry (Waldsteinia fragarioides) 14; rattlesnake plantain (Goodyera tesselata) 1; pipsissewa (Chimaphila umbellata) 3; wild sarsaparilla (Aralia nudicaulis) 1. As indicated, the plants were set out in the trimmed strips along the path. They were planted in clumps because it was thought that they would thus not only be easier to locate, but would probably compete and grow better than if set out individually.

So far as we can now judge the various species are all doing very well, and the introduction seems to be a success. It must be borne in mind, however, that the growing season of 1954 was quite favorable for transplanting, and in a drier season the results might be less good.

A class in Plant Conservation at the University of Wisconsin is at present working on a developmental plan for the Leopold Forest. This plan will outline future plantings and offer suggestions for the management needed to attain the true white pine-red pine association.

Woody Plantings in 1954

J. R. Jacobson, Arboretum Superintendent, has furnished the following list of

woody plants set out in spring and early summer 1954. No fall plantings have yet been made.

Council Ring area
40 prairie roses

Viburnum area
97 viburnums of 25 different species
6 Cornus racemosa (gray dogwood)
7 Amelanchier canadensis (juneberry)
6 Pyrus ioensis (wild apple)

Nakoma entrance area
12 Diervilla (bush honeysuckle)
3 Ceanothus americanus (New Jersey tea)
3 Amelanchier canadensis (juneberry)

Sugar maple area
1200 Acer saccharum (sugar maple)
50 Fraxinus americana (white ash)
10 Ostrya virginiana (ironwood)
3 Amelanchier canadensis (juneberry)

Pine-spruce border area
850 Populus tremuloides (trembling aspen)

Spruce-fir area
500 Abies balsamea (balsam fir)
1000 Picea glauca (white spruce)
1000 Picea mariana (black spruce)

Jack pine area
200 Pinus banksiana (jack pine)
250 Pinus resinosa (red pine)

Research area (F. B. Trenk)
750 Pinus resinosa (red pine)
900 Pinus strobus (white pine)

Pine plantings in Grady Tract
1300 Pinus strobus (white pine)
500 Pinus resinosa (red pine)
125 Betula papyrifera (white birch)

Wingra Woods area
800 Tsuga canadensis (hemlock)
480 Betula lutea (yellow birch)
200 Fagus grandifolia (beech)
40 Amelanchier canadensis (juneberry)
25 Betula papyrifera (white birch)
25 Ostrya virginiana (ironwood)

Elm-ash bottomland area
175 Betula nigra (river birch)
50 Fraxinus americana (white ash)
50 Ulmus americana (American elm)

Juniper and Camp woods area
50 Betula papyrifera (white birch)
50 Juglans nigra (walnut)
10 Ostrya virginiana (ironwood)

Leopold Pines area
275 Betula papyrifera (white birch)

Northeast Grady Tract (newly acquired)
100 Pinus banksiana (jack pine)
100 Pinus resinosa (red pine)

Belt Line fence
8 Amelanchier canadensis (juneberry)

McCaffrey Drive
12 Amelanchier canadensis (juneberry)

Grady Tract oak area
Volumes of acorns and nuts planted
1 bu. Quercus alba (white oak)
3/4 bu. Quercus rubra (red oak)
1½ bu. Quercus velutina (black oak)
1½ bu. Quercus macrocarpa (bur oak)
1 peck Juglans nigra (walnut)
½ peck Carya cordiformis (yellow-bud hickory)
½ peck Carya ovata (shag-bark hickory)

Nursery
180 shrubs set out, about half of which are small lilacs which will be transplanted to the lilac area.

Research in Progress on the Arboretum

There are currently 53 approved active research projects on the Arboretum. Representatives of 11 University of Wisconsin departments are directing these projects, while two of the projects are under control of workers from the U. S. Forest Products Laboratory in Madison. Distribution of projects among departments is as follows: Agricultural Engineering (i.e., Agr. Forestry) 1; Agronomy 1; Botany 11; Entomology 3; Genetics 2; Horticulture 5; Meteorology 1; Plant Pathology 4; Soils 4; Wildlife Management 13; Zoology 6.

Eight projects were completed in 1953, including 3 in Botany, 2 in Zoology, 1 in Agronomy, 1 in Plant Pathology, and 1 in Wildlife Management.

Arboretum Personnel

Chairman of the Arboretum Committee ..... A. F. Gallistel
Executive Director ..... G. W. Longenecker
Research Coordinator ..... J. T. Curtis
Superintendent ..... J. R. Jacobson
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