Photographs of powerline right of way, Patuxent Wildlife Research Center, Summer and Fall of 1968. Taken by David Smith. These photographs were taken mainly from camera points established earlier by Higman. They show the state of the vegetation before and during the selective control work done in 1968 and constitute an integral part of Smith's report.



Figure | Upland site with Robinia pseudoacacia, Populus grandidentata, and Pinus virginiana predominant. The trees at the right are Populus grandidentata; the trees in the foreground are Pinus virginiana (some cut); and the trees in the left foreground are Robinia pseudoacacia. The small tree, in the lower left corner, is an Aralia spinosa. To the right of this tree, a Prunus serotina and a Carya tomentosa are present. These seedlings are positioned in front of the Vaccinium sp. and the Solidago graminifolia. To the right of the Solidago graminifolia, a patch of Lysimachia quadrifolia is present. Between the Pinus virginiana and the Populus grandidentata, there is a Quercus phellos. The view is southeast from Higman's Camera Point #1, Map I, about 63 feet east of the fence and 14 feet south of the access trail.



Figure 1 Upland site (photographed after pines were cut) dominated by Pinus virginiana, Populus grandidentata, and Robinia pseudoacacia. Upright trees in center are Populus grandidentata, and the tree in the left foreground is a Robinia pseudoacacia. A Carya tomentosa is situated at the far lower right corner. The Solidago graminifolia (only two plants) is situated in the center front foreground. The view is northeast toward PM1589 stake from Higman's Camera Point #2, Map I, which is 112 feet east of the fence.



Figure 3 Photo of access trail. Site dominated by Pinus spp., Liriodendron tulipifera, Populus grandidentata, and Robinia pseudoacacia. In right foreground are Liriodendron tulipifera, Populus grandidentata, and Robinia pseudoacacia. In front of these is a pile of Pinus virginiana. In the left background are Robinia pseudoacacia, Populus grandidentata, Pinus spp., and Acer rubrum. The Acer rubrum is positioned beneath the leaning Robinia pseudoacacia. In the foreground and along the access trail, there are Andropogon virginicus, Danthonia spicata, and Solidago graminifola. The view is east from Higman's Camera Point #3, Map I, which is 70 feet east of the boundary fence, along the access trail.



Figure 4 Site dominated by Pinus virginiana. An Acer rubrum limb is leaning to the right in the extreme upper left corner. A Liriodendron tulipifera and a Carya tomentosa are situated next to a log in the lower left half of this photo. This photo was taken from Higman's Camera Point #4, Map I, at the 1579 stake.



Figure 5 The tree species are predominately Pinus spp. and Nyssa sylvatica. The Pinus spp. are on the right and left sides of the tower. The Nyssa sylvatica are in the background behind the tower. One of these Nyssa sylvatica is situated behind the first tall Pinus sp. in the right foreground. The foreground herbs are predominately Andropogon virginicus and Solidago graminifolia. View is northwest from Smith's Camera Point #I, Map II, near the access trail.



Figure 6 Dominant trees, in the foreground, are Pinus virginiana and Nyssa sylvatica. The Nyssa sylvatica are situated in the left foreground (to the right of the Liriodendron tulipifera seedling) and between the center Pinus virginiana behind the Quercus palustris. The trees in the background beneath the wires are (from left to right) Populus grandidentata and Robinia pseudoacacia. The foreground herb is primarily Andropogon virginicus. View is west 60 feet north, following access trail, from Smith's Camera Point #I. The camera point is Smith's Camera Point #II, Map II.



Figure 7 Site dominated by Populus grandidentata. In front of these (from left to right) are Liriodendron tulipifera and Pinus virginiana (in lower left corner), and Pinus virginiana next to the Liriodendron tulipifera seedling, to the extreme right. There is a Rhus sp. among the Liriodendron tulipifera in the lower left corner. The foreground herbs are primarily Andropogon virginicus and Solidago spp. View is east from Smith's Camera Point #III, Map II, about 30 feet north of access trail.



Figure 8 Site showing an Acer rubrum next to the far leg of tower. On the right side of this Acer rubrum, there is a Liriodendron tulipifera (beneath the tower) in front of the background Populus grandidentata in the right background. On the left side of this Acer rubrum, there is a Pinus virginiana and a Liquidambar styraciflua (beneath the diagonal beam of the tower's base). A Populus grandidentata is shown in front of the Acer rubrum among the foreground Andropogon virginicus. North view of tower 236 from Smith Camera Point #IV, Map II.



Figure  $\P$  . Photo showing the Ford tractor and Asplundh chipper which was used to chip the cut Pinus spp. View is east from a point in front of Tower 236S, Map  $\mathbb{Z}$ .



Figure [0] Site dominated by Acer rubrum, Liriodendron tulipifera, Liquidambar styraciflua, and Pinus spp. The Aronia arbutifolia is among the Liriodendron tulipifera in the right foreground. The Liriodendron tulipifera are situated in the front foreground. Behind there (from left to right) are a Liquidambar styraciflua, an Acer rubrum, and a Pinus sp. In the left background, next to the road, there is a Liquidambar styraciflua. In front of this tree, to the extreme left, there is a Pinus sp. In the left background, Solidago spp. are present. The entrance road is at the far right. This photo was taken from Higman's Camera Point #1, Map IV, at junction of entrance road and access trail; view northeast.



Figure | Site dominated by Pinus spp., Nyssa sylvatica, Acer rubrum, Prunus serotina, and Liriodendron tulipifera. The Nyssa sylvatica are in the far left of the photo. An Amelanchier tree can be seen between the Pinus spp. and Liriodendron tulipifera in front of tower. Between the Pinus spp., at the right of this photo, there are Populus grandidentata. In one of these photos, at the extreme upper right corner, there is an Aronia arbutifolia, which leans to the left. The foreground is primarily Andropogon virginicus and Solidago (graminifolia, juncea, and rugosa). View taken from Higman's Camera Point #2, Map IV, on access trail 100 feet east of tower 2375.





Figure 12. Photo showing three of the Pitch pines, Pinus rigida, which sprouted after they had been cut below the lowest branch. Two of these Pinus rigida are on the right and left sides of the three men, and the other one is about 4 feet behind the spray nozzle. View is east, Map IV, on the left side of Access Trail, near entrance gate.



Figure 3 Site dominated by Potentilla canadensis, Danthonia spicata, Andropogon virginicus, Lespedeza virginica, and Solidago (juncea, puberula, graminifolia, altissima, and rugosa). Scattered among these herbs are seedlings of Pinus spp., Populus grandidentata, Liriodendron tulipifera, Acer rubrum, and Robinia pseudoacacia. The Populus grandidentata, in the background is next to the Lespedeza bicolor. The Robinia pseudoacacia is situated in the lower left corner. The bare areas, in the front foreground, are characteristic of this area. View is southeast from Higman's Camera Point #1, Map V, midway between towers 238N and 238S.



Figure 14- Site dominated by Pinus spp. and Sassafras. A number of Sassafras are situated among the Pinus spp. in the right background. An Acer rubrum is situated to the right of the Liriodendron tulipifera and the Rhus glabra which are situated in the lower left foreground. Beside the Acer rubrum, from left to right, are a leafless Aralia spinosa, a Rhus glabra, and a number of Sassafras. The herb in the front foreground is primarily Danthonia spicata. The view is southeast from Higman's Camera Point #2, Map V, beside the new access trail, 70 feet west of tower 2305.



Figure 15 The Populus grandidentata is situated in the left foreground. The Pteridium aquilinum var. latiusculum is situated in the right foreground. The important species other than these are primarily Nyssa sylvatica (in the center and right foregrounds), Andropogon virginicus, and Danthonia spicata. View is west from Higman's Camera Point #4, Map V, 60 feet west of the north Corner of tower 238N.



Figure | 6 Photo of site after pines have been cut. In the left foreground, there is a Robinia pseudoacacia. To the right of this Robinia pseudoacacia, there are Sassafras albidum, Quercus falcata, Populus grandidentata, and Liriodendron tulipifera. The small forked tree, in the lower right corner, is a Sassafras albidum. Most of the trees that surround this Sassafras albidum are Quercus falcata. The foreground herb is primarily Andropogon virginicus. The view is southwest from Higman's Camera Point #1, Map VI, at the small ditch midway between the old and new access trails and 84 feet north of the telephone pole beside the old trail.



Figure 17 Photo of site after pines have been cut. The foreground trees are primarily Sassafras albidum and Liquidambar styraciflua. The Sassafras albidum and the Quercus falcata are primarily on the left side of this photo whereas the Liquidambar styraciflua is primarily on the right side of this photo. One Liquidambar styraciflua is photographed parallel with the tower. A seedling Liriodendron tulipifera is situated in the lower right corner. The foreground herbs are Andropogon virginicus and Danthonia spicata. The view is west from Higman's Camera Point #2, Map VI, at the same location as Higman's #1 Camera Point, Map VI, looking toward tower 238N.



Figure 20 The dominant trees are primarily Liriodendron tulipifera and Populus grandidentata. The Populus grandidentata are in the left foreground behind the Liriodendron tulipifera. There is a Nyssa sylvatica in the lower right corner. The view is south from Higman's Camera Point #7, Map VI, at the same location as Higman's Camera Point #2, Map VI.



Figure 18 Photo of access trail and surrounding vegetation. The trees, in the upper right corner, at the summit of the slope, parallel with the towers, are Liriodendron tulipifera. In front of these Liriodendron tulipifera are a number of Nyssa sylvatica. Beside these (from right to left) there are Populus grandidentata and Robinia pseudoacacia. The foreground is predominately Rubus (blackberry), Andropogon virginicus, and Danthonia spicata. The view is southwest from Higman's Camera Point #4,3



Figure | 9 Site dominated by Liriodendron tulipifera, Populus grandidentata, and Pinus spp. The view is southeast from Higman's Camera Point #4, Map VI, at the same location as Higman's Camera Point #1, Map VI.



Figure 2.1 The primarily tree species in this photo are Pinus spp. (before the pines were cut), Liquidambar styraciflua, Liriodendron tulipifera, and Nyssa sylvatica. In the center of this photo, there is a Liquidambar styraciflua. On the right side of this Liquidambar styraciflua, there are a number of Liriodendron tulipifera. The foreground herbs are primarily Andropogon virginicus, Eupatorium verbenaefolium, Panicum spp., Juncus spp., and Carex spp. The view is northwest from Higman's Camera Point #8, Map VI, beside the access trail and 30 feet west of the telephone pole adjacent to Holly Brook.



Figure 2. Site dominated by herbs. The herbs are Bidens polylepis and Digitaria sanguinalis. The view (of peess trail) is east from Higman's Camera Point #1, May VII, beside tower 239N.



Figure 27 Aspect of the banks and bed of Holly Brook. In the center, there is a clone of Alnus serrulata. The trees are Liquidambar styraciflua. In the foreground, at the lower right, there is a patch of Panicum clandestinum. The view is east from Higman's Camera Point #2, Map VII, on the line between towers 239N and 240N, about 42 feet west of the PM2589 stake.



Figure 2'S Site dominated by shrubs. The shrubs are Rubus (blackberry), Smilax glauca, and Rhus (glabra and copallina). In the right background, in front of the Rubus (blackberry), there are Nyssa sylvatica. The left foreground herb is primarily Andropogon virginicus. The view is west from Higman's Camera Point #3, Map VII, at the base of tower 2395.



Figure 24 Site dominated by herbs. The herbs are Solidago (graminifolia, juncea, rugosa, and altissima), Potentilla canadensis, Ardropogon virginicus, and Panicum clandestinum. In the left foreground, there is a Populus grandidentata clone. The herb in front and along side this Populus grandidentata clone is Lespedeza virginica. Photo was taken from Higman's Camera Point #2, Map IX, about 42 feet from the forest margin. This photo represents Higman's Camera Points #1 and #2, Map IX. The view is northeast across service road.



Figure 25 View of upland site showing a Populus grandidentata tree in the center of photo. Other Populus grandidentata are in the left center foreground and the extreme far right background. A Sassafras albidum is situated on the right side of the Populus grandidentata in front of tower. The herbs are Andropogon virginicus, Potentilla canadensis, and Solidago (graminifolia and juncea). The nearest towers (from left to right) are 240S and 240N. The view is west from Higman Camera Point #3, Map IX, about 30 feet north of the PM3572 stake.



Figure 2. Site occupied by a clone of Prunus serotina and Robinia pseudoacacia in right foreground. The shrubs are Rubus(blackberry) and the herbs are Poa pratensis and Solidago graminifolia. The Laurel-Bowie road appears in the background. The view is southeast from Higman's Camera Point #1, Map XII, at the corner of tower 251N.



Figure 2. Site dominated by Ambrosia artemislifolia (with scattered Solidago graminifolia and juncea). The Shrub in foreground is Rubus (blackberry). The Solidago spp. is situated in the front foreground in front of the Ambrosia artemislifolia. One of these Robinia pseudoacacia is situated in the left front foreground. The view is south from Higman's Camera Point #3, Map XII, on the access trail opposite FM4419 stake.



Figure 25 Site dominated by Ambrosia artemisiifolia (with scattered Poa pratensis and Rubus (blackberry). In the background and scattered among the herbs, there are Robinia pseudoacacia. The background Robinia pseudoacacia forms a hedge along the fence. The view is north from Higman's Camera Point #4, Map XII, at the same location as Higman's Camera Point #3, Map XII.



Figure 4 Photo of Prunus serotina hedge in front of drainage pond. In the center foreground, there is a Quercus phellos. At the extreme left, at the base of the Prunus serotina hedge, there is a Pinus sp. The herbs (in foreground) are Andropogon virginicus, Danthonia spicata, and Lespedeza virginica. The herb next to the base of the Prunus serotina hedge, in the right foreground, is Panicum clandestinum. View is northwest from Higman's Camera Point #1, Map XIV near access trail 40 ffet from gate.



Figure 2º Photo of drainage pond showing Nuphar luteum. View is northwest from Smith's Camera Point #II, Map XIV, about 20 feet from Higman's Camera Point #2, Map XIV, and 30 feet from Higman's Camera Point #2, Map XIV. The photo was taken from inside the Prunus serotina hedge.



Figure ##. Site dominated by Prunus serotina, Pinus spp., Liquidambar styraciflua, and Sassafras albidum. In front foreground there are Prunus serotina. In the right background, there are Pinus spp., Liquidambar styraciflua, and Sassafras albidum. The Sassafras albidum are in back of the Pinus spp., on the right side of this photo, between the Liquidambar styraciflua, the tall tree tree in the center is a Prunus serotina situated behind the tallest Pinus sp. In the left background, there is a Quercus alba in front of the Liquidambar styraciflua. Another Quercus alba is situated behind the tallest Pinus sp. on the left side of the tallest Prunus serotina. The herb next to the small Pinus sp., furtherest to the left is Lespedeza virginica. View is southeast from Higman's camera point # 4, Map XIV, near the junction of the Access Trail and the Cash Lake Trail.



Figure 32. Site dominated by Prunus serotina and Populus grandidentata. The Populus grandidentata is on the right side of tower. A low shruby Liquidambar styraciflua is situated in front of these, Populus grandidentata. Another Liquidambar styraciflua is situated in front of the Prunus serotina on the right side of this photo. The Prunus serotina are in front of the tower and on the right side of the Populus grandidentata. The herbs (in foreground) are Andropogon virginicus. In the background, there are Lespedeva virginica and Solidago (graminifolia and juncea). The view is northwest midway between Higman's camera Points # 3 and # 5, Map XIV. Higman's camera point # 3 is 28 feet southwest and 42 feet northeast of tower 252N. Higman's camera point # 5 is midway between the towers and 15 feet southeast of tower 252S.



Figure 2. Site dominated by Pinus spp., Sassafras albidum, Nyssa sylvatica, Liquidambar styraciflua, and Prunus serotina. The trees in the very front left foreground are Nyssa sylvatics.—Just behind these, there are Liquidambar styraciflua, and Quercus spp. In the extreme right corner, there is a Populus grandidentata, beside the Nyssa sylvatica and in front of the Liquidambar styraciflua seedlings. The foreground shrubs are Vaccinium spp. and Rhus glabra and copallina. The herb is Andropogon virginicus. View is southeast from Higman's camera point # 1, Map XV, 56 feet along trail from fork (see map.).



Figure 24. The Pinus spp. have been cut. This site dominated by Pinus spp., Populus grandidentata, Prunus serotina, Liquidambar styraciflua, Nyssa sylvatica, and Quercus spp. View is northwest from camera point # 2, at center of line and bank of tributary ditch.



Figure 5. Photo showing foreman Bill Bishop, Asplundh Tree Expert Company, and tractor. This site is dominated by Pinus spp., Nyssa sylvatica, and Populus grandidentata. The pines are cut. The Nyssa sylvatica are in the center and right foreground. The Populus grandidentata are in far left foreground. The shrubs are primarily Clethra alnifolia and Vaccinium spp. View is west from Higman's camera point # 3, Map XV, 36 feet from Access Trail at a point 42 feet from the fork.



Figure 7. The Pinus spp. have been cut. This site dominated by Pinus spp., Nyssa sylvatica, and Quercus spp. There are in the background behind the foreground Clethra alnifolia and Vaccinium spp. View is southeast from Higman's camera point # 4,000 feet from the Access Trail and 28 feet from Higman's camera point # 3.



Figure 7. Site dominated by Pinus spp. and Sassafras albidum. Note Pinus spp. stumps in right foreground. In the left foreground there are Pinus spp. beneath the Sassafras albidum. In the right background Quercus spp. are present. The shrubs are Vaccinium spp. and Rhus (glabra and copallina). The herb is Andropogon virginicus. This photo represents Higman's camera points # 2 and # 5, Map XV. The view is northwest from Higman's camera point # 5 are edge of Owah about 95 feet along the bank from the junction of gully and Access Trail.



Figure 5. Site dominated by Pinus spp., Sassafras albidum, Prunus serotina, Acer rubrum, and Nyssa sylvatica. The pines have been cut, but the Sassafras albidum, Prunus serotina and Nyssa sylvatica still remain. There is a Quercus alba in the front left foreground. The Nyssa sylvatica are behind the Quercus alba in the left foreground, beside the Sassafras albidum. Other Nyssa sylvatica are in front of the background, Acer rubrum and behind the Sassafras albidum on the left side of the Prunus serotina. View is northeast from Higman's camera point # 6, Map XV, at the same location as Higman's camera point # 5, Map XV.



Figure 27. This site dominated by Quercus alba, Pinus spp., and Liquidambar styraciflua. The Quercus alba are primarily situated in center and lower left foreground. The Liquidambar styraciflua is situated in the upper left and right corners. The shrubs are primarily Vaccinium spp. and Gaylussacia baccata. These are visible beneath the Quercus alba and Liquidambar styraciflua in the upper right foreground and the extreme lower left foreground. The background tower is 252S. The view is northwest from Higman's camera point # 7, Map XV, at forest margin opposite fork in Access Trail.



Figure 40. Site dominated by Pinus spp., and Nyssa sylvatica. The Pinus spp. have been cut. View is southeast from Higman's camera point # 8, Map XV, at same location as Higman's camera point # 7, Map XV.



Figure 4. Site dominated by Prunus serotina and Populus grandidentata. The Prunus serotina are at base of tower and the Populus grandidentata are on the right side of photo. The shrub is a Rubus (blackberry) and the herbs are Androposon virginicus and Solidago graminifolia. View is northeast from Higman's camera point # 9, Map XV from Access Trail, 45 feet south of tower 252S.



Figure 2. Site dominated by Pinus spp. There have been cut Pinus spp. Note the stumps shown at the lower right of this photo. View is northeast from Higman's camera point # 1, Map XV T, at center of line.



Figure 43. Site dominated by Pinus spp. A dense stand of Pinus spp. are in right background. On the left side of the tower, there are Acer rubrum, Liriodendron tulipifera, and Populus grandidentata. The foreground herb is Solidago graminifolia. View is south from Smith's camera point # 2, Map XVI, about 150 feet north of Tower 2535.



Figure 4. Head-on view of Spoil heap left by gravel pit excavation, showing Pinus spp. dominant. The small tree in right foreground is a Sassafras albidum. On the other side of this Sassafras albidum (from right to left) there are a Pinus sp., a Quercus phellos, and a Liquidambar styraciflua. The Quercus phellos is behind the Sassafras albidum seedling, and in front of the Acer rubrum. The tall herbs in the front foreground are Lespedeza capitata. View is southwest from Higman's camera point # 3, Map XVI, at a point 20 feet from the spoil heap and 15 feet from the fence.





Figure 12. Site dominated by Pinus spp. and Quercus spp. The foreground Pinus spp. have been cut, however, whereas the background Pinus spp. have not been cut. The oaks (mostly Quercus falcata) are mixed in with the Pinus spp. A Populus grandidentata is situated in the upper left corner. The shrubs (not visible) are primarily Glethra ainifolia and Vaccinium spp. View is southeast from Higman's camera point # 4, Map XV, 60 feet from the Access Trail and 28 feet from Higman's camera point # 3, Map XV.



Figure 4. Site dominated by Andropogon virginicus and a small trailing Rubus (blackberry). The tall herbaceous herb is the Lespedeza capitata. Next the fence, thereare Bidens polylepis and Dacus carota. The Rubus (blackberry) is in right foreground, between the Pinus spp., and behind the Lespedeza capitata. At least two Pinus spp. seedlings are in right foreground. Taken from Higman's camera point # 5, Map XVI, at summit of spoil heap.



Figure 47. Two photos are used to describe this site. This site is dominated by Pinus spp. and Liquid-ambar styraciflua. The Pinus spp. are located in the background and on the right side of these photos, and the Liquidambar styraciflua is located in the left and center foregrounds of these photos. A Prunus serotina is located between the Liquidambar styraciflua and the Pinus spp. The herbs are primarily Andropogon virginicus and Danthonia spicata. The view is north from Higman's camera point # 6, Map XVI, on side of spoil heap.





Figure 4. View showing Populus grandidentata as the dominant tree species. These are primarily located in the center and right foregrounds. The Liquidambar styraciflua is primarily located in the extreme right and left foregrounds and in the background. There is a Quercus alba in the center foreground. The shrub in left foreground is a Rhus copallina. The herbs are Andropogon virginicus, Solidago graminifolia, and Juncus effusus. The background is dominated by Pinus spp. View is south from Higman's camera point # 3, Map XVII, about 42 feet south of tower 254N.



Figure 4. Photo showing the cutting of Pinus spp. with a power saw. View is west at a point near the junction of Maps XVII and XVIII.



Figure 50 . Photos showing the chipping of cut Pinus spp. View is west at a point near the junction of Maps XVIII and XVIII.







Figure 1. This site dominated by Eragrostis sp., Danthonia spicata, Solidago graminifolia, Erechtites heracifolia, Bidens polylepis, and Juncus effusus. The tree species are Nyssa sylvatica, Liquidambar styraciflua, Acer rubrum, and Pinus sp. Baside the left leg of the tower, there are a Nyssa sylvatica (on the left side) and a Liquidambar styraciflua (on the right side). In the right and left backgrounds, there are more of these species. The Liquidambar is primarily in the right background, and the Nyssa sylvatica and the Acer rubrum is primarily in the left foreground. The view is southeast from Higman's camera point # 1, Map XVIII, beside the old Access Trail and about 60 feet northwest of tower 255N.



Figure 3. Site dominated by Pinus spp. Scattered among the Pinus spp. stumps are this site's co-dominants Populus grandidentata, Nyssa sylvatica, and Liquidambar styraciflua. The Populus grandidentata are primarily located in the background. A Liquidambar styraciflua is located in the extreme right foreground. View is south from Higman's camera point # 2, Map XVIII, about 75 feet east of Access Trail. Towers in the distance are 255N and 255S.



Figure 3. Site dominated by Populus grandidentata and Liquidambar styraciflua. The Populus grandidentata are situated in the right and left backgrounds. The Liquidambar styraciflua is situated in the corner next the Populus grandidentata. The herbs are primarily Andropogon virginicus, Solidago graminifolia, and Bidens polylepis. The Solidago graminifolia and Bidens polylepis are in the front foreground. The flowering plants in the left center foreground are the Bidens polylepis. The tallest tree in the center is a Salix nigra. View is north from Higman's camera point # 3, Map XVIII, on the new Access Trail opposite tower 255N.