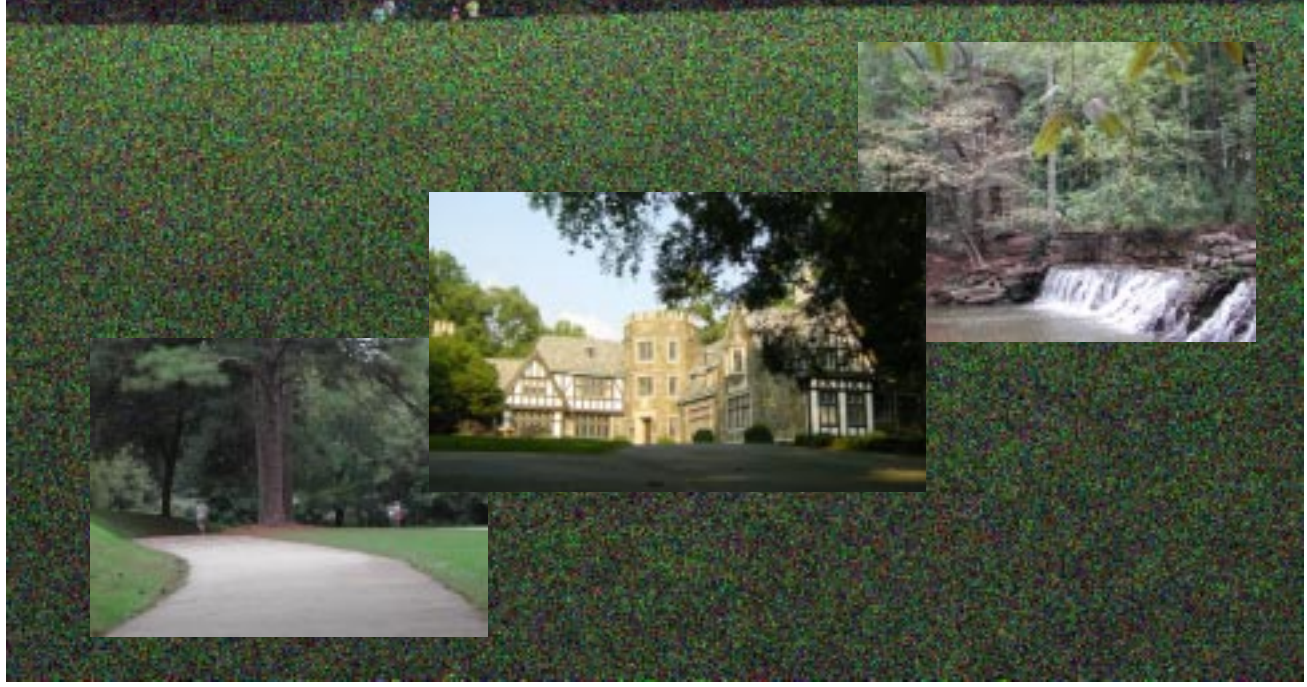




EMORY
UNIVERSITY

Lullwater Comprehensive Management Plan

Submitted by
**The University Senate Committee on the Environment/
Lullwater Task Force Subcommittee**
December 2002



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September 2002

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Lullwater Comprehensive Management Plan

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Lullwater Comprehensive Management Plan

Members of the University Senate Committee on the Environment/Lullwater Task Force Subcommittee

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Don Shure, Professor-Biology, COE - Co-Chair

Carolyn Brown, Reference Librarian, Health Science Center, COE, LTFS

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Nancy Seideman, Assistant Vice President for Public Affairs, LTFS

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John Wegner, Senior Lecturer, Department of Environmental Studies, COE

Lullwater Comprehensive Management Plan Executive Summary

The Lullwater preserve is a priceless resource for the Emory community. The forest and streams provide a living laboratory for students and faculty to participate in teaching and research. Lullwater House, situated on a hill within the preserve, is the site of the President's home, while the surrounding grounds serve as a recreation area for walkers, bicyclists and joggers.

Most importantly, Lullwater is a place of solitude and retreat that enables visitors to reinvigorate mind, body and spirit.

But Lullwater is in need of regeneration.

In 2000, President William M. Chace established the Lullwater Task Force to "oversee, manage and protect the land," but the group's work was hindered by the absence of a plan to help inform and guide its decision making. At the request of the University Senate Committee on the Environment (COE), Robert Hascall, Sr. Associate Vice President of Facilities Management, brought together members of the COE and the Lullwater Task Force to develop a comprehensive management plan.

Subsequent research conducted by the COE/Lullwater Task Force Subcommittee clearly demonstrates that the growth in development and population along Lullwater's borders, and the human presence within, has steadily weakened the preserve's ecological health.

Even without further development along the edges that protect the preserve, human visitors, and their pets and vehicles, disturb the lives and habitats of birds and other animals. The spread of invasive species is progressively eliminating native vegetation, and stormwater runoff from outside of Lullwater constantly erodes the stream beds, destroys aquatic life, and silts up the lake.

Action needs to be taken immediately within these critical areas (see "Priority Recommendations") in order to ensure that Lullwater does not suffer irreversible damage from circumstances that can be prevented and/or controlled.

In order for the Lullwater Task Force to fulfill its mission, the University needs to provide the task force with the budget, resources, and expertise required to effectively perform its responsibilities.

The subcommittee recognizes that fulfilling its priority recommendations alone will represent a significant commitment of resources from the University. But the subcommittee believes that vast, untapped resources and opportunities exist in the areas of fund-raising and grant sponsorship that can help defray the costs associated with caring for Lullwater.

As evidenced by a 1999 survey by Emory's Committee on Traditions and Community Ties, Lullwater represents a strong emotional connection for alumni, faculty, staff and students, providing a wellspring of potential, tangible support for the preserve.

The subcommittee recommends that the Lullwater Task Force work with representatives from Institutional Advancement, and other appropriate university officers, to explore potential and promising sources of funding and support for Lullwater.

The Lullwater Comprehensive Management Plan is designed to be a living, "breathing," document that will be referenced often, augmented frequently with new research, and updated as the University fulfills its responsibility to take care of this land.

By using the plan in this fashion, the Emory community can ensure that Lullwater's integrity truly is preserved for current and future generations by sustaining a balance between the land's ecological health and its human use.

Development of a Lullwater Comprehensive Management Plan

The COE/Lullwater Task Force Subcommittee, comprised of staff, faculty and student repre-

sentatives, began working in May 2001 to:

- Inventory the current ecological health of Lullwater, i.e., the state of vegetation, wildlife and streams.
- Review all available data on the numbers of people regularly visiting Lullwater to determine the type of use and where activities are concentrated within the preserve.
- Examine current guidelines for accessing Lullwater's resources, including the campus forest use policy, and document problems that may have occurred regarding enforcement of these guidelines.
- Propose a plan for restoring the ecological health of Lullwater and managing sustainable human use of the preserve.

Based on the subcommittee's research, members Tim Bryson, Jacob Halcomb, James Johnson, Nancy Seideman and John Wegner drafted the attached report, which has been reviewed and approved by the entire subcommittee.

The report outlines the current health and status of Lullwater in various areas, and includes a list of recommendations for addressing current and future challenges facing the preserve. Categories covered are: Streams/Lake; Native Plant Habitat; Invasive Species; Wildlife; Teaching and Research; Recreation; and Residential. Also included is a brief history of Lullwater, which provides an overview of the forces that have helped to shape and reshape the land.

General Recommendations

The attached report describes conditions in Lullwater according to major categories of concern, offers general principles for management, where appropriate, and makes specific recommendations for assessment, remediation, preservation, and/or enhancement.

In general, the subcommittee recommends that the University:

- Restore the streams that have been impaired by deforestation, non-point source pollution, and stormwater runoff, by re-engineering the current drainage systems to eliminate excessive surges and siltation; restoring stream banks using biological materials; protecting areas within 25 feet of a stream with native vegetation; and cleaning up debris on a regular basis.
- Protect wildlife in Lullwater by monitoring, protecting and enhancing native species, and by monitoring and controlling invasive species (geese, ducks and cats).
- Preserve native plant habitat by maintaining an updated vegetation map to identify and locate native and invasive species, replanting other native tree and plant species, and removing invasives.
- Maintain recreational areas without further damaging the natural environment by mapping trails and designating them with signs, and preventing access to damaged trails until they are repaired.

- Protect and preserve Lullwater House and its landscaped grounds for their historical and institutional value. Their distinct character within the Lullwater preserve requires different standards of care and maintenance from the natural and recreational areas.
- Provide special protection for educational/research areas through collaboration with teachers and researchers.
- Include the Lullwater Comprehensive Management Plan as part of a campus-wide Forest Management Plan, which currently is being developed under the auspices of the COE.
- Provide additional resources for the maintenance of Lullwater. Although the current Lullwater maintenance staff of two employees does an excellent job of caring for the preserve, they need additional resources to implement the recommendations outlined within this report, and to effectively maintain the grounds in the future.
- Contract with external consultants to provide expertise in the areas of stream bank restoration, stormwater management, and trail maintenance.

Priority Recommendations Requiring Immediate Action

Among the report's recommendations, priority attention should be given as soon as possible to the following critical areas:

- The University should stabilize and restore the stream that flows into Lullwater from Druid Hills High School. Aside from appropriate protections placed within the stream and on the banks, the stream buffer should be 25 feet where it runs along the recreational turf area near the lake.
- Erosion problems in the woodland areas caused by overuse of certain trails and by foot traffic up slopes should be addressed by developing trail maps, closing unapproved trails, improving trails, and providing adequate signage.
- Stormwater drainage into Lullwater from the new Clairmont Campus needs to be redirected away from those entry areas, and the rate of flow needs to be controlled.
- The dam at the north end of Candler Lake needs to be repaired in order to prevent a catastrophic flood of water and silt into the road and into South Fork Peachtree Creek.
- The spoils dam above Candler Lake needs to be repaired before the rest of the silt from the last dredging of the lake runs back down into it again, further deepening the erosion troughs as well as destabilizing the biology research pond.
- English ivy needs to be removed from non-landscaped areas.
- Privet needs to be removed from the floodplain forest where it nearly has taken over native plant habitat between Peachtree Creek and Candler Lake.

Reporting to the Emory Community

The COE/Lullwater Task Force Subcommittee report will be shared with the Lullwater Task Force and with the COE for review, input and endorsement. The report also will be delivered formally to President Chace.

After appropriate review and comment by university officers and committees, it is recommended the report be offered to the Emory community for public discussion.

Lullwater Comprehensive Management Plan

Ecological Context

Lullwater is an ecosystem with complicated, interrelated parts that function together as an ecological unit. But Lullwater, as any ecosystem, is an open one, meaning that the preserve cannot be viewed in isolation from the other ecological systems that surround it.

This openness is most evident in the context of water, invasive species, and recreation. For example, Lullwater is part of a larger watershed—the area of land that drains rainwater into a common stream. Therefore, water flows from outside the boundaries of Lullwater into the preserve, serving as a potential source of change in water quality. Because Lullwater is situated in the midst of an urban environment, stormwater runoff is an important issue not only in terms of water quality, but also in relation to the quantity and timing of water flow into the preserve.

Invasive species also represent a critical element of Lullwater’s ecosystem. Most of the important invasive species in Lullwater (e.g. kudzu, English ivy, and privet) were introduced to North America as cultivated species. However, these species have escaped cultivation and have invaded places like Lullwater, resulting in changes in the structure and function of this forest ecosystem.

As Emory and its surrounding communities grow, more people will seek out Lullwater for recreation and retreat, placing more demands on the preserve’s resources. For this reason, it is important for us to consider the amount and type of recreational use of Lullwater, both now and projected into the future.

Of course, Lullwater is part of an even larger ecosystem, the Piedmont physiographic region. Lullwater lies within the Southern Appalachian Piedmont. A piedmont is a landform created at the foot of a mountain, comprising a relatively low rolling plateau (from 300 to 1,800 feet) cut by many rivers, and representing a fertile agricultural region. The forest of Lullwater are connected into other forests outside the boundaries of Lullwater (Map 1).

The Piedmont region of the eastern United States runs some 600 miles between New Jersey (north) and Alabama (south), and lies between the Appalachian Mountains (west) and the Atlantic Coastal Plain (east). The major forest type in this ecosystem is oak hickory forest with an admixture of pines. Early successional stands are dominated by pines, tulip poplar and sweet gum.

The Lullwater Comprehensive Management Plan was developed within an ecological context, recognizing the complexity of the ecosystem’s interacting components. For ease of management, however, we have divided Lullwater into categories including streams/lake, native plant habitat, invasive species, wildlife, teaching and research, and recreation and residential areas.

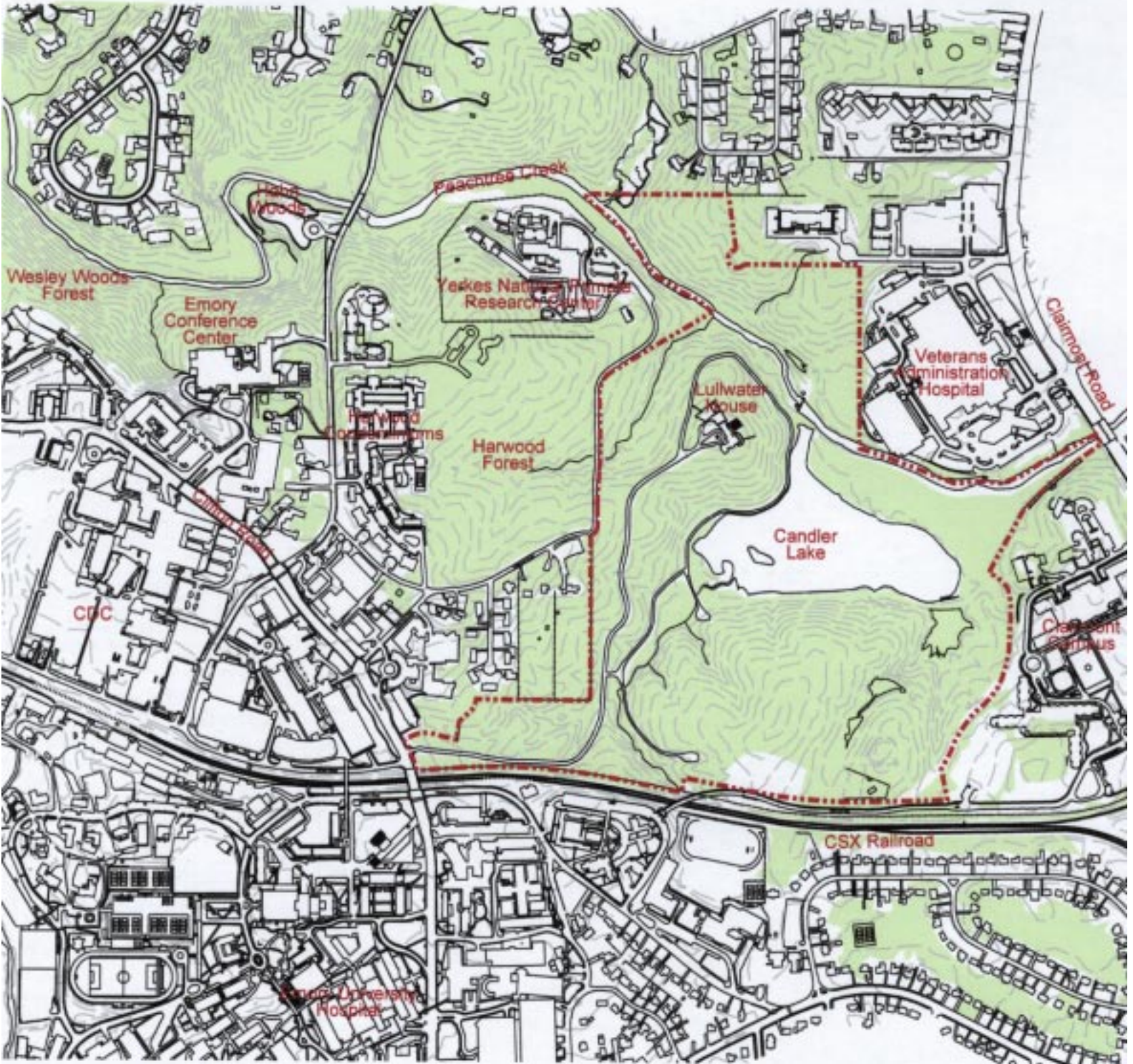
Although we have made these distinctions in order to prioritize our recommendations, it is imperative that Lullwater always be considered in its totality, as a fragile ecosystem that is dependent upon its many parts in order to remain healthy and vital.

Purchased from Walter Candler in 1958, Lullwater is now 132 acres of natural, recreational and residential area (Map 2). Fences delineate the various sections of Lullwater (Map 3). The preserve has utility lines (electric, sewer, gas and water) along its borders and crossing the property in order to serve the residence (Map 4).

For a history of Lullwater, see Appendix A.

Legend

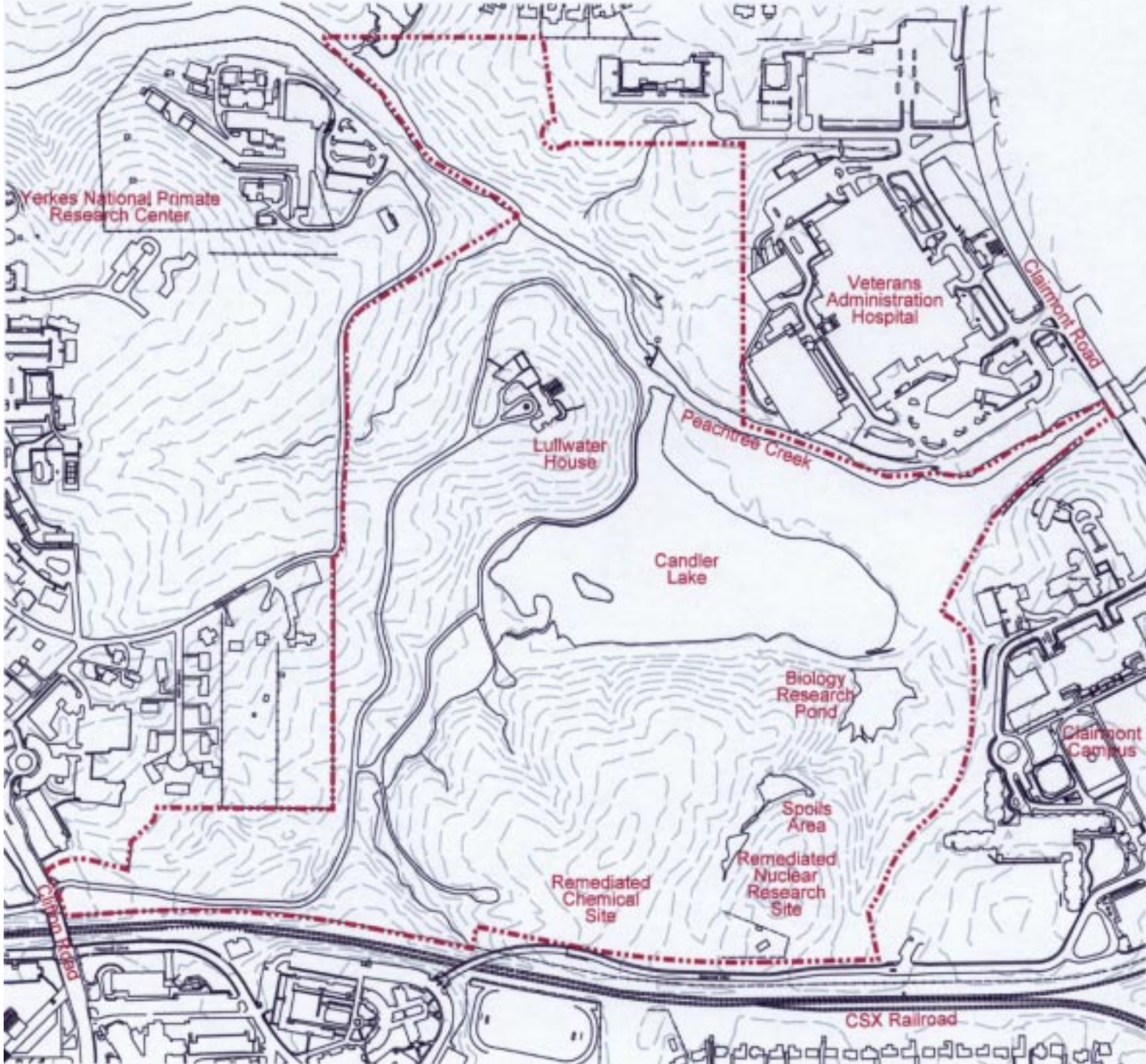
----- Lullwater Property Boundary



Map 1 Lullwater Estate Context Plan.

Legend

----- Lullwater Property Boundary




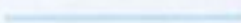


Map 2 Lullwater Estate Location Plan.



Map 3 Existing Fence Plan

Legend

-  Electrical Line
-  Sanitary Sewer
-  Gas Service
-  Water Service



Map 4 Utilities Plan

Lullwater Comprehensive Management Plan Streams/Lake

Goal: To restore Candler Lake and the Lullwater streams that have been impaired by stormwater runoff and by the after-effects of dredging Candler Lake in the 1980s (Maps 5, 6).

Issue: In Atlanta, urbanization has had a severe impact on the hydrological cycle, primarily as the result of the clearing of forests that once dominated the area, and the conversion of a large fraction of the landscape into impervious surfaces.

The most important change to the hydrological cycle has been the increase in surface runoff and a corresponding decrease in the percolation of water into the soil. This fact has resulted in streams becoming ‘flashy’ (i.e. subject to extreme variation in flow rates and water velocity following rainfall events). This situation leads to stream bank erosion, and to aquatic habitat destruction as leaf matter is flushed downstream.

The construction of Starvine Way has led to a rise in the amount of stormwater runoff that is draining into Lullwater, adversely affecting both the streams and the runoff’s entry points. Stormwater also enters Lullwater from the Woodruff Residential Hall, Druid Hills High School, Clairmont Campus, and Yerkes National Primate Research Center.

Another damaging factor is the non-point source pollution from roads and parking lots that’s contained in the stormwater discharged into streams. The first flush (i.e., the initial 1 to 1.5 inches of rain) harbors the bulk of the pollution.

In addition, the dredging of Candler Lake in the mid-1980s, the dumping of dredging spoils behind a man-made dam in Lullwater, and the subsequent breaching of this dam, have led to increased loads of sediment entering the Biology Research Pond and Candler Lake.





Recommendations for restoration:

1. Stabilize/restore the bank of the stream that flows from Druid Hills High School into Lullwater. In addition, the stream bank buffer should be 25 feet in the meadow upstream from Candler Lake (Fig. 1).
2. Assess the quantity and quality of water flowing from the Clairmont Campus into Lullwater and take remedial action, as needed.
3. Repair the dam at the north end of Candler Lake (Fig. 2). Stabilize the eroding shoreline of Candler Lake and manage stormwater flow into Candler Lake.
4. Stabilize the spoils dam so that more sediment does not flow downstream into the Biology Research Pond and Candler Lake (Fig. 3).
5. Assess stormwater discharge into Lullwater as a result of the construction of Starvine Way and take remedial action, as needed.
6. Assess erosion associated with the Woodruff Residential Hall and related impervious surfaces and take remedial action, as needed.
7. Restore the stream bank along the portion of the South Fork Peachtree Creek that flows through Lullwater.
8. Conduct a feasibility study for the dredging of Candler Lake.

Recommendations for continuing maintenance:

1. Treat the first flush of stormwater discharged into Lullwater as the result of new projects for water quality since the majority of non-point pollution is known to be included in the initial 1 to 1.5 inches of rain.
2. Biannually monitor sediment in detention structures and perform clean ups as needed.
3. Maintain plantings near eroding or endangered stream banks to inhibit easy human access.
4. Perform an annual check on the spoils dam for structural integrity.
5. Perform biannual stream clean ups of South Fork Peachtree Creek (Fig. 4).

Legend

-  Lake and Creek Stream
-  Stream
-  Intermittent Stream
-  Storm Drainage line



Map 5 Drainage Systems Plan



Map 6 Erosion Plan



Figure 1 Erosion Along the bank of the Druid Hills High School Stream near Candler Lake.



Figure 2 Candler Lake Dam.



Figure 3a Spoils pond created in 1985 when a portion of Candler Lake was dredged. The line of trees indicates the dam.



Figure 3b Breach in spoils dam.



Figure 3c Downstream from the spoils dam of Figure 3b.



Figure 3d Starvine Way detention dam looking toward silt pond.



Figure 4 Trash in South Fork of Peachtree Creek. Trash has been captured in the branches of a tree that fell into the creek due to streambank erosion.

Lullwater Comprehensive Management Plan Native Plant Habitat Management and Improvement

Goal: To identify major native plant habitats and make recommendations for maintaining or restoring them throughout the Lullwater preserve, except where historical plantings or recreational use will not allow. This issue is related closely to invasive species management (Map 7).

Issue: Lullwater lies within the Piedmont physiographic region which has been substantially modified by human activities in the last 150 years. Past land use in Lullwater mirrors the changes that have occurred in the Piedmont. As a result, special attention and priority should be given to the mapping, restoration, and protection of native Piedmont plant habitats within the preserve (Figs. 5, 6). In addition, past clearing of the forest has created edge effects. Forest edges differ from forest interiors in very important ways including providing habitat for invasive species. See for example Fig. 7.










Recommendations for restoration:

1. Plant stream bank buffer, at least 25 feet wide, along Druid Hills High School Creek.
2. Remove the telescope pad and building, and reforest the site.
3. Reforest the detention pond.
4. Add trees to the beds at Lullwater's entrance.
5. Reclaim the floodplain along South Fork Peachtree Creek.
6. Rehabilitate Candler Lake Island.
7. Restore the old nuclear experimental site.
8. Create a document that maps vegetation type and vertical strata in Lullwater. This map will be used to identify opportunities/needs for restoration of native Piedmont plants for the different strata.

Recommendations for continuing maintenance:

1. Verify the vegetation and strata map every five years. Habitat "check-ups" should be conducted annually to identify problem areas, outbreaks of invasive species, or areas in need of special maintenance.
2. Reforestation and restoration efforts should focus on the habitats and not a single species of plant. This holistic approach will increase the likelihood of success for protecting native species.
3. Compile a comprehensive plant species list for Lullwater.

Legend

- | | | | |
|---|---------------------|---|---|
|  | 5 Mixed Forest |  | 2 Turf |
|  | 6 Floodplain Forest |  | 3a Turf and Mature Hardwood |
|  | 8 Disturbed Area |  | 4a Hardwood Forest - Oak Dominant |
|  | 9 Wetland |  | 4b Hardwood Forest - Oak Beech Dominant |
|  | 10 Oldfield | | |



Map 7 Vegetation Plan



Figure 5 Lullwater is home to some of the premier deciduous forest in the Atlanta region.



Figure 6 Reforestation is a key element of the Lullwater Comprehensive Management Plan.

Lullwater Comprehensive Management Plan Invasive Species

Goal: To identify invasive species and their location and determine if plants need to be removed or controlled and, if so, to recommend methods of removal and management (Maps 8, 9).

Issue: Two types of species exist in Lullwater: native species, which occurred in Georgia prior to European settlement of the area; and non-native species, which have been introduced to the region. Non-invasive, non-native species have become established in the wild, but spread so gradually that they do not threaten native species, while invasive species are out of control and do threaten native species.

The most prevalent invasive species in Lullwater are privet, English ivy, kudzu and Japanese honeysuckle (Figs. 7, 8, 9). While it may be acceptable to have invasive species, especially English ivy, in landscaped areas near human habitation and along roads, it is unacceptable for invasive species to occupy the natural areas of Lullwater.

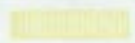






Recommendations for restoration:

1. Remove kudzu from underneath the base of Starvine Way bridge.
2. Remove English ivy from non-landscaped areas and remove ivy from trees throughout Lullwater..
3. Remove privet from the floodplain forest.
4. Remove invasive species from the edges of the trail system.
5. Remove kudzu from the South Fork Peachtree Creek area.

Recommendations for continuing maintenance:

1. Annual habitat “check-ups” should help track and map the status and location of the invasive species found in Lullwater. Areas to be remediated should be ranked using the following criteria (listed in order of priority) in terms of the impact on: research; visual appearance; rare species; severity of infestation; and sensitive edge communities.
2. Invasive species should be removed and/or controlled with ecologically sensitive mechanical or chemical methods. Volunteers can be recruited from campus groups to assist with the former, and professionals can be hired to perform the latter. Upon removal, the ground should be stabilized and replanted with appropriate native Piedmont species.

Legend

	Chinese Privet		Eleagnus
	English Ivy		Kudzu
	Japanese Honeysuckle		Multiple Invasive
	Mimosa		



Map 8 Invasive Plants Plan



Map 9 Invasive Plants Management Recommendations



Figure 7 Chinese Privet is an important invasive species that dominates forest edges and floodplains in Lullwater.



Figure 8 English Ivy is an important invasive species in Lullwater.



Figure 9 Kudzu is invading Lullwater by Starvine Way bridge.

Lullwater Comprehensive Management Plan Wildlife Management

Goals: To identify wildlife species whose populations have suffered as a result of human activity and to enhance and protect their populations wherever possible. To identify nuisance species in Lullwater and use appropriate means to control their effects on the preserve.

Issue: As a result of human development in and around Lullwater, population sizes of various wild-life species have been impacted. Some species have become extinct in Lullwater and in the greater Atlanta region as a result of human activity, while populations of other species have declined dramatically. At the same time, and for the same reason, the populations of nuisance species have increased in Lullwater.

Two prominent nuisance species that have established new or larger populations in Lullwater include Canada geese and cats. In this region, Canada geese have changed from being a migratory species to one that now breeds here, resulting in population growth (Fig. 10). Geese have detrimental effects on Lullwater: They graze on the shoreline vegetation and, in high numbers, denude the shoreline of vegetation and destabilize the soil; and their excrement discourages recreation on grassy areas around the lake (Fig. 11). In addition, goose feces may lead to eutrophication of Candler Lake. Feral cats have a devastating impact on songbird and small mammal populations, and can carry rabies.

For a list of some of the wildlife found in Lullwater, see Appendix B.

Recommendations for restoration:

1. Use appropriate control measures to reduce the population of feral cats and Canadian geese.
2. Enhance native habitats to encourage populations of those species that have declined as a result of human activity. For example, nest boxes could be placed along the edges of meadows to attract blue birds to Lullwater.

Recommendations for continuing maintenance:

1. Monitor waterfowl and feral cat populations, continue population control if needed.
2. Maintain landscape plantings that reduce goose habitat but encourage native waterfowl species.
3. Continue to compile lists of species that occur in Lullwater. Additions should include: plants, fungi, fish, bats, and invertebrates.



Figure 10 Goose population has exploded at Candler Lake.



Figure 11 Overpopulation of geese has led to overgrazing and subsequent erosion.

Lullwater Comprehensive Management Plan

Teaching and Research Areas

Goal: To identify areas used for teaching and research. To make recommendations for appropriate protection of the environment by researchers, and of the research areas by non-researchers (Map 10).

Issues: Unsupervised research can damage habitat. Casual visitors can harm or disrupt the research environment, for example, by trampling on insect traps or vegetation markers.

Recommendations for restoration:

1. Designate the whole of Lullwater, excluding the residential areas, for general teaching/ research purposes (Fig. 12).
2. Protect areas of special teaching/research. Currently, these areas are: the Biology Research Area (especially the two streams and the Biology Research Pond) and the hillside on the north shore of Southfork Peachtree Creek used for more than a decade by Biology 142 for an environmental gradient study (Figs. 13, 14).
3. Develop, in collaboration with faculty, a protocol or permit system to be administered by the Lullwater Task Force in order to: keep track of who is working where in Lullwater; avoid research conflicts; obtain results after a project is complete; supervise site clean up after the completion of a study; and exclude excessively intrusive research.

Recommendations for continuing maintenance:

1. Teachers, researchers and appropriate departmental offices should provide annual updates on areas used and faculty responsible for those areas. These areas should be demarcated by signs and on visitor maps; text on the signs and maps should encourage visitors to avoid these areas, e.g., “Research Area: Please do not approach.”

Legend

- Research Areas
- Recreation Areas
- Residential



Map 10 Existing Landuse Plan



Figure 12 Lullwater plays a key role in research/teaching at Emory University.



Figure 13 The Biology Research Pond.



Figure 14 Long-term teaching/research areas are of critical importance in Lullwater.

Lullwater Comprehensive Management Plan Recreation Areas

Goals: To identify areas suitable for recreation activities. To develop a restoration and maintenance plan for recreation areas that are in need of repair (Map 11).

Issue: The Lullwater preserve is used by Emory University students, faculty and staff, and the general public, for a variety of recreation activities. The paved and unpaved roads and the trails within the forested areas are very popular with walkers and joggers. The turf areas on either side of the entrance drive and around the lake are utilized by individuals and groups for a variety of activities such as sunbathing, picnicking, dogwalking, and games (Fig. 15). Safety of visitors to Lullwater is of the utmost importance.

Factors that have an adverse effect on Lullwater's recreation/natural environment include overuse in some areas and the development of 'informal' trails. Both of these situations have led to serious soil compaction and erosion (Figure 16). For an account of users in Lullwater, see Appendix C.




Recommendations for restoration:

1. Develop an approved trail system for Lullwater. Produce an official trail map for Lullwater.
2. In the design of an approved trail system, renovations of existing trails, and design of proposed trails all applicable accessibility guidelines should be followed.
3. Repair the trail along the edge of Clairmont Campus from the gate into Lullwater to Candler Lake.
4. Repair the Alvin V. Beatty Nature Trail. The trail was designed and preserved by the Emory Woman's Club and is of historical significance to Lullwater. Redesign/rebuild trail sections that are aligned parallel to the slope. This step will reduce trail erosion and prolong trail life.
5. Remove the informal trail by the Alvin V. Beatty Nature Trail and the informal trail along the edge of the fence at the west edge of the Biology Research Area.
6. Restore areas along the banks of the lake and streams where people, dogs, and other wildlife have compacted the soil and caused erosion.
7. Provide signage indicating approved recreation areas and trails and provide appropriate boundary markers with signs prohibiting access. Text on signs and on visitor maps should be non-specific so as not to invite undue attention, e.g., "Protected Environment: Authorized Personnel Only."

Recommendations for continuing maintenance:

1. Maintain adequate turf areas for public recreation. Reduce turf areas only where required to stabilize stream banks or lake shorelines.
2. Maintain conditions of approved trails. Address erosion problems along trail edges as they develop.
3. Aggressively address any informal trail development by closing the area off and repairing the damage.

Legend

-  Paved Roads
-  Unpaved Roads
-  Walking Path



Map 11 Existing Roads and Path Plan



Figure 15 Candler Lake and the lawns of Lullwater provide areas for picnics, lounging and play.



Figure 16 Overuse and inappropriate trail placement can lead to erosion.

Lullwater Comprehensive Management Plan Residential Area

Goal: To designate the Lullwater House and its immediate grounds as a specific area with separate use, design, and maintenance standards.

Issue: Lullwater House is an integral component of the total Lullwater preserve, representing the land's early history, as well as that of Emory's (Figs. 17, 18), and serving as a contemporary home to the President and his/her family. For this reason, the house, the grounds immediately adjacent to the residence, and the entrance drive, should have a landscape character that is distinct from the rest of Lullwater, and in keeping with the era in which the house was constructed.

Recommendations for restoration:

1. Delineate the historic landscape areas including the house, the grounds immediately adjacent to the residence, the entrance drive, the landscaped areas on either side of the drive, the water mill tower, and the original pool and bathhouse location.
2. Develop restoration plan for existing facilities and surrounding landscape.
3. Retain all elements of the existing landscape surrounding Lullwater House for historical purposes.
4. Develop planting guidelines for the landscape areas.

Recommendations for continuing maintenance:

1. Maintenance should be carried out as use and historic character requires.



Figure 17 Lullwater House residence for the President is an important feature of Lullwater.



Figure 18 The original pool and bathhouses are of historical significance.

Lullwater Comprehensive Management Plan

History of Lullwater

Researched and written by Tim Bryson
On behalf of the COE/Lullwater Task Force Subcommittee
April 2002

This brief history of Lullwater, which provides an overview of the forces that have helped to shape and reshape the unique assets and identity of the land, is designed to help the COE/Lullwater Task Force Subcommittee develop a comprehensive management plan for the preserve.

Broadly speaking, the earlier history of Lullwater mirrors its recent history—the ongoing superimposition of human constructions on the natural topography and vegetation.

The place called Lullwater passed through four stages in its history: Piedmont forest; hunting grounds for the Cherokee and Creek nations; site of farms, mills, and residences for European American settlers; and finally as a resource for Emory University, which has used it alternatively to house the president, to sell for profit, to build on, and to preserve for recreation and education.

Traces of most of the earlier stages remain. Although most of the old-growth trees were cut, there are still vestiges of the Piedmont mixed pine and hardwood forest described in the 1986 Murdy-Carter Report. No traces of the Native American presence have been reported although signs of campsites have been found further downstream.

The only evidence of early European settlers within the original Lullwater property is the cemetery at the top of the hill on the Clairmont Campus. The cemetery belonged to land donated by Naman Hardman for a meeting house in the 1820s. Relics from Washington Jackson Houston's grist mill (replacing a saw mill set up by Hardman) can be found just downstream of Lullwater. Walter Candler, who purchased the land in 1925, contributed the name Lullwater itself, the residence and its landscaped grounds, the dam and the artificial lake, and the development of the 44-acre University Apartments site that is now the location of Emory's Clairmont Campus.

The main thrust of Emory's stewardship since it acquired the land in 1958 has been sale or development of the land and maintenance of the residence and its grounds. Preservation of the remaining forest has been mostly a passive result of non-development. In the early 1960s, the northern section of Lullwater was given over to the new Yerkes National Primate Research Center and, later, 20 acres of the eastern section were sold to the U.S. Government for construction of the Veterans Administration Medical Center.

Two acts stimulated the production of the Murdy-Carter report in 1985, which called for the protection of the remaining land. These were the dredging of Candler Lake and the sale of five acres of land to the Southern Association of Colleges and Schools. In 1999 Emory built a shuttle road along the southern edge of the property. In response to the outcry from the Emory community, President William M. Chace pledged that he would protect the land from further encroachment, and he created the Lullwater Task Force to fulfill that purpose.

Chronology

1820s After taking the land from the Cherokee nation, settlers divided it into landlots that were distributed by lot. Peter Roadlander and William Pace were “winners” of the Lullwater area. Almost immediately they sold their lots to others. Naman Hardman bought two of the four lots that overlap current Lullwater boundaries and, in 1826, he deeded two acres for a meeting house which is marked by the site of a cemetery on the Clairmont campus. Hardman’s Church was destroyed by General Sherman in the Civil War (Sherman headquartered just a couple of blocks away on Clairmont Road while overseeing the Battle of Atlanta). (Sams 1998, p. 2; Rinard 1983, p.1)

1840 Dr. Chapman Powell (1798-1870) bought portions of the Lullwater land lots, but Hardman retained ownership of his sawmill located at the site of Houston’s grist mill. It was said that Powell offered his medical services to the Cherokees as well as to the settlers. (Sams 1998, p. 2-7)

1857 Powell purchased another 180 acres of land from Ezekiel Mason, which included the eastern edge of what became the Lullwater preserve. (Sams 1998, p. 10)

1863 James Oliver Powell (1826-1873), son of Chapman, bought the 180 acres from his father. (Sams 1998, p. 10)

1863 Washington Jackson Houston (1831-1911) bought 600 acres from Chapman Powell, his father-in-law. Houston farmed the land, ran the mill, and worked for Western & Atlantic railway as a transportation and freight agent. (Historical Marker Application 1995)

1922-25 Harry J. Carr leased then bought Houston property around the old Houston Mill (on both sides of Houston Mill Road). He renovated the mill house and built a home across the street [now the Houston Mill house]. (“Houston Mill.” Box 71. DeKalb Historical Society Archives)

1925-26 Walter T. Candler, son of Asa Candler (founder of Coca-Cola and donor in 1914 of the original 75 acres in Druid Hills to Emory), bought the remainder of Houston’s property (250 acres) and built “Lullwater Farms.”

Candler’s main business was raising and racing horses. A “practice” track was located on the present site of the Veterans Administration (VA) Medical Center. In 1951-2 Candler’s horse “Duke of Lullwater” was a winning harness racer. Candler also owned 41 head of Hereford cattle, hogs, and chickens. A cattle pasture surrounded the artificial lake (created in 1952). The stone gate dismantled in 2002 at the entrance to Williams Lane was the original estate entrance. Candler hunted possums in the woods of what is now the Clairmont Campus. (Suburban Gazette. November 12, 1958. Woodruff Library “Lullwater”)

Lullwater House was designed by architect Lewis E. Crook and constructed by his business partner Ernest D. Ivey in the style of 16th century English country estates. (Funderburk 1994). The house was built from stone quarried on the site; the hole was filled up to make a swimming pool. The dam and powerhouse on South Fork Peachtree Creek furnished electricity to the house in early years. Private waterworks pumped water from springs located next to the biology research pond. (Emory Alumnus, Nov. 1958, pp. 4 ff.; Platt 1970)

According to a 1985 Emory Magazine article, “Ivey and Crook’s success with Lullwater led to their being named unofficial architects for Emory. From the 1920s to the 1950s, Crook designed some forty buildings” on the Emory campus, including the Candler Library, the Alumni Memorial University Center (now part of the Dobbs University Center), and the Administration Building. Crook also built the First Baptist Church of Decatur, Druid Hills High School, and the Alumni Hall of Emory University. (Thomas 1996)

In the 1920s Metropolitan Opera stars were frequent guests to the house. Barbecues were served in the clubhouse on the lake (site of VA Hospital), and there were sometimes boat races on the lake. At other times, guests would gather in the boxes surrounding the race track to watch horse races. On the Fourth of July fireworks were exploded over the lake. Each spring, the Candler’s opened Lullwater Farms for an annual Easter egg hunt for the children of the Atlanta Child’s Home. (Gwin 1972, p. 2G. Woodruff Library, Candler Collection Folder 4)

1926-62 Ernest Richardson served as the first Lullwater caretaker. (“He made Lullwater Bloom”)

1950 Candler sold 43.5 acres for the development of University Apartments (acquired by Emory in 1986; now site of Clairmont Campus). (Hauk 1999, p. 87). L. H. Fitzpatrick, C.E., mapped Candler property. Candler in March 1958 told Emory that this survey was still accurate, and a copy was given to Emory. (Letter 1958)

1952 The lake in its present form was created by diverting the creek upstream of the dam into its present channel and by dredging the original creek basin. (Platt 1970)

1958 Emory purchased the remaining 183 acres of the Candler estate (Figs. 19, 20, 21). The Emory Board of Trustees Chairman said that the property gave Emory “stretching room” for university growth. It was speculated that the house might be used as the president’s house or it might be “razed,” and/or that a large part might be left undeveloped for athletic fields and other activities. (Wheel. Oct. 16, 1958). More than half the property was described as “virgin woods,” chiefly white oaks and poplars. (Emory Alumnus, Nov. 1958, pp. 4 ff). Emory sold a 100-acre tract north of Peachtree Creek on Houston Mill Road to help pay for the Candler estate. 127 acres of the estate lay south of Peachtree Creek. It was speculated that the remaining 58 acres north of Peachtree Creek might be sold for business purposes (“A Report ...” 1960)

In the same year Dr. Robert Platt created a Radiation Research Field Station on the southeastern side. Radioactive materials were placed in a shaft to study their effects on native plants and animals. (Emory Alumnus, Feb. 1959, p. 17)

Emory President S. Walter Martin “preferred not to live in the new official residence of the Emory president, believing it to be too isolated.” For part of the time it served as a dormitory for researchers from the School of Business. (Hauk 1999. p. 117)

By 1960, Lullwater’s future development and use had not been decided and members of the Emory community asked for recreational access. (Wheel. April 28, 1960)

1961 Official names were given to the house and lake—Lullwater House and Lullwater Lake (the latter’s name eventually was changed to Candler Lake. Woodruff Library, Candler Collection Folder 4)

THE
Emory
ALUMNUS

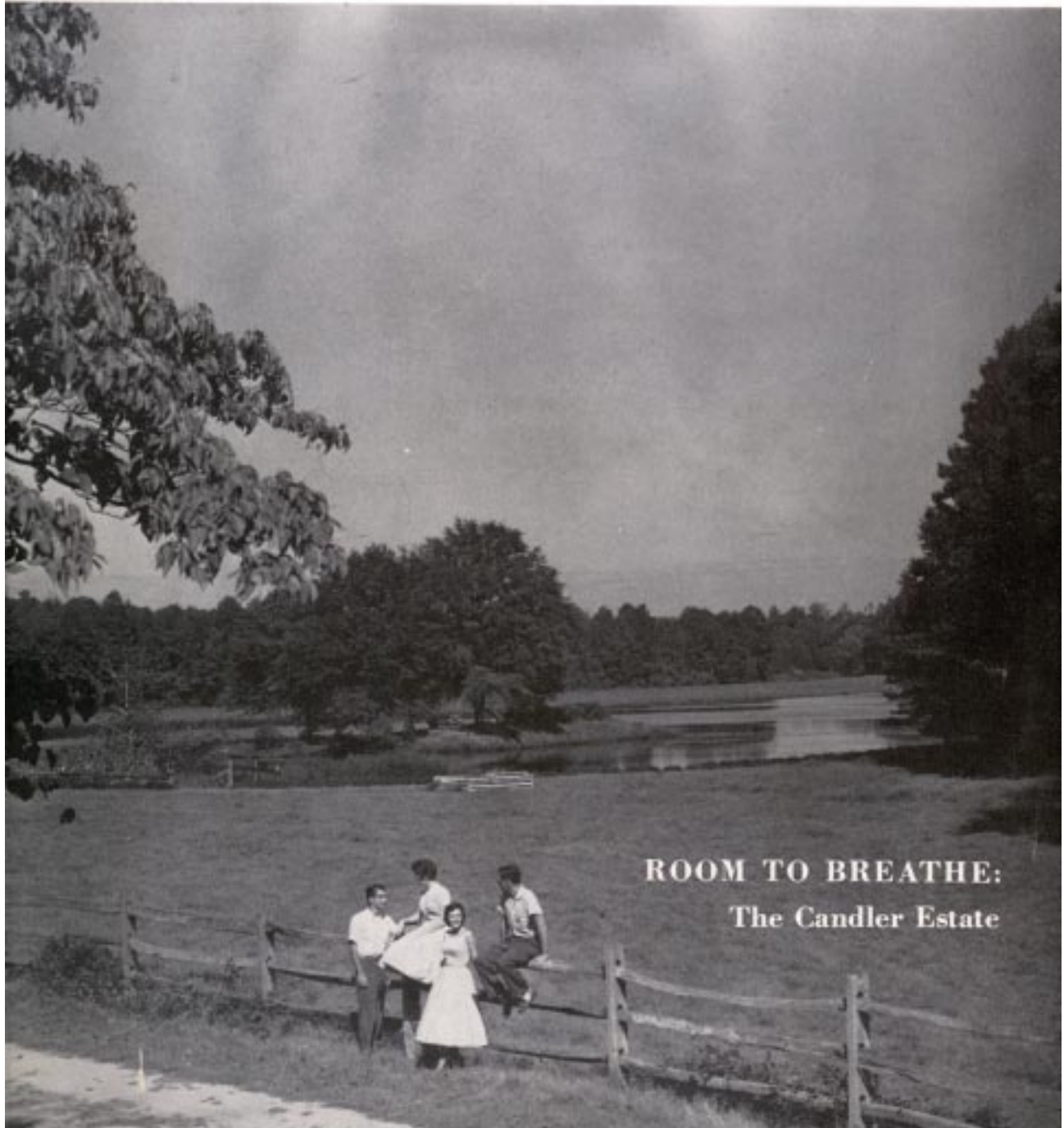
Enrollment Bounces Back
It's at a 10-year peak

The No. 1 Doctor of America
He's Alumnus Louis Orr

#68

NOVEMBER 1958

pp. 4-9



ROOM TO BREATHE:
The Candler Estate

Figure 19 Emory Alumnus magazine cover November 1958 announcing the purchase of Candler Estate.



Figure 20 Cows graze in pasture beside South Peachtree Creek, in distance, woods on the estate (Emory Alumnus Nov. 1958).

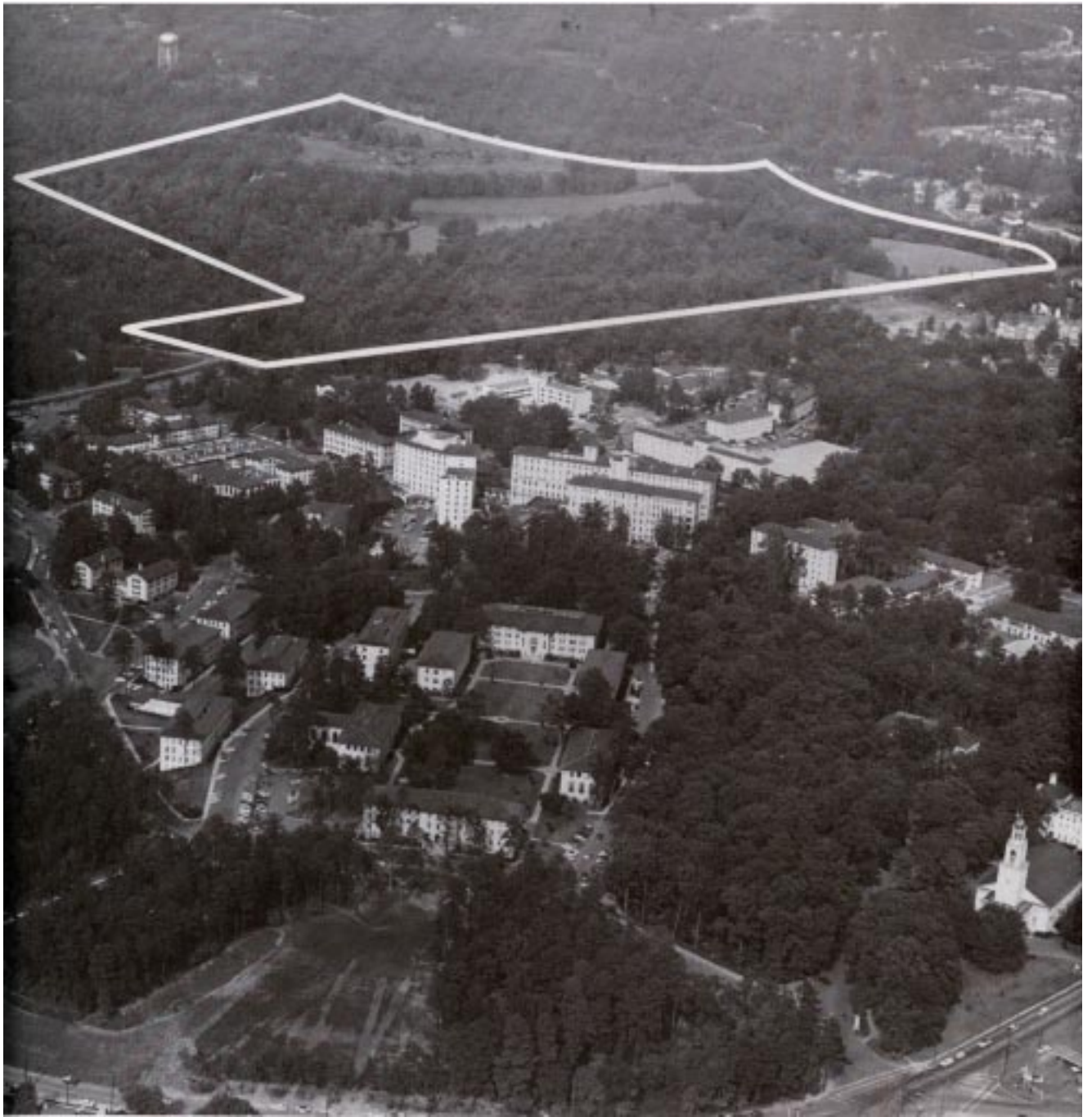


Figure 21 1958 Aerial view of campus showing outline of Candler Estate (Emory Alumnus Nov. 1958).

1962 The Biology department established a 20-acre Biological Field Station on the property—one section in the area between the lake and creek now dominated by privet and one section around the Biology Research Pond. (Emory Magazine, 1962). An old cabin was refurbished to serve as a laboratory on a knoll above the pond and a micrometeorological tower was erected at each site to study bugs and air at different heights. (Platt 1970). The towers fell into disuse and were pulled down (but not removed) in the early 1990s after high school students were discovered in the towers. (Prof. Don Shure, University Senate Committee on the Environment field trip to Lullwater, 2002)

Plans were made to locate the Yerkes National Primate Research Center on 26 acres, partly on Lullwater property and the rest on what used to be the Harry J. Carr property on the area now known as Harwood forest. (Myers 1963)

1963 Newly appointed 16th University President Sanford Saverhill Atwood became the first president to occupy Lullwater House. (Thomas 1996)

25.98 acres were sold to U.S. Government for the VA Hospital (later medical center), dedicated in 1967. (Woodruff Library, Topographical Map 1963)

The first set of ground rules for use of Lullwater by Emory faculty, staff, and students was published. (Woodruff Library, “Lullwater”)

Yerkes moved into its new facilities. (Groundbreaking 1964)

1966 Three monkeys of the *Macaca Mulatta* species lived on the island in Candler Lake for a few months. Bryan W. Robinson, M.D. put them there because the island was said to approximate closely their natural habitat in India. “The experiment was not a 100% success because the monkeys did not stay on the island,” he said. (Monkey 1966)

1970 Robert Platt and students in his ecology class published the first comprehensive report on Emory’s natural environment; there were frequent references to Lullwater. (Platt 1970)

1971 Motivated by the report, an Environmental Awareness Committee of the Student Government Association was created and students cleaned up South Fork Peachtree Creek at the dam. (Cleaning 1971)

1974 Chemistry Department buried chemicals in Lullwater when it moved from the humanities building to the chemistry building. (Burbanck 1995)

1977 James T. Laney became the second Emory president to occupy Lullwater House.

Alistair Cooke in a BBC broadcast “Letter from America” called Emory the “most beautiful campus in America” with “plunging hills and gardens and little lakes, all set off with towering trees”... “Visiting Emory was like walking into the Garden of Eden.” (Woodruff Library, “Lullwater”)

1986 Emory purchased the 44-acre University Apartments property that was originally part of Lullwater Farms (Hauk 1999, p. 203) and sold five acres of Lullwater property on the other side of Peachtree Creek to the Southern Association of Colleges and Schools. (Prof. Eloise Carter 2002)

Against advice from the biology department, President Laney authorized the dumping of silt from a dredging of Candler Lake behind an artificial dam on the hill above. The dam eventually breached and large quantities of silt flowed back into the lake and the biology research pond. The sale of land to Southern Association of Colleges and Schools, and the dredging of Candler Lake, led Professors William Murdy and Eloise Carter to publish their report that year on the “Status of Forested Land of Emory University,” and others proposed formation of a University Senate Committee on the Environment. (Prof. Don Shure, University Senate Committee on the Environment field trip, 2002. Prof. Eloise Carter)

1987 Publishers Clearinghouse used a photo of the Lullwater House in an advertisement without permission. Caption read “Enter Today—Win it All.” (Atlanta Journal. Dec. 30, 1987. pp. 1A, 7A. and Dec. 31, 1987. See Woodruff Library “Lullwater”)

1990 Prof. William Burbanck, retired, reported to a faculty environmental meeting that hazardous chemicals had been buried in Lullwater. (Burbanck 1995)

1994 William M. Chace became Emory’s president, the third to occupy Lullwater House. Renovation of Lullwater House begins. (Thomas 1996)

1994-97 Clean up of hazardous materials was undertaken at Lullwater (Fig. 22). (Emory Wheel. Sept. 9, 1994, p. 5. “Clean up of Lullwater hazardous waste site planned” Emory

Report Vol. 48. no. 13. November 27, 1995; Emory Report. Vol. 48, no. 21. Feb. 12, 1996. “Lullwater Soil Tested” Emory Report. Vol. 48, no. 21. Feb. 12, 1996. “Final phase of Lullwater clean-up begins.” Emory Report. Vol. 48, no. 29. April 15, 1996. “Lullwater clean-up in progress.” Emory Report. Vol. 48. No. 29. May 6, 1996. “Department of Natural Resources gives green light to unrestricted use of Lullwater toxic site” Emory Report. Vol. 49. No. 33. June 9, 1997)

1990s Campus publications reported that Lullwater was the site of many recreational and fundraising events, especially foot races.

1996 A national tour of leading nature writers and poets included a nature walk in Lullwater. (“Forgotten Language Tour to feature readings, nature walk.” Emory Report. Apr. 8, 1996)

1997 A jury indicted a suspect in sex crimes committed in Lullwater. (Emory Wheel. Feb. 17, 1997). The university inaugurated a new master plan. Students cite Lullwater as one of their favorite “hang-out spots.” (Emory Wheel. Feb. 18, 1997)

Six court summonses were issued to individuals walking unleashed dogs in Lullwater. (Emory Wheel. Feb.21, 1997)

1998-99 Campus planners propose a shuttle road in Lullwater. A public forum to discuss the road was held, and the issue was vigorously debated during meetings of the Students Government Association, Employee Council and University Senate committees. The road was approved and completed in fall 1999—it was built along the edge of Lullwater and its use restricted to alternative fueled vehicles, pedestrians and cyclists. (See several articles and letters in Emory Wheel and Emory Report in 1998 and 1999. See also “Chace is determined to keep his promise not to build any more parking decks on

campus.” Atlanta Journal Constitution. Mar. 18, 1999)

2000 As an outgrowth of the debate over the construction of the shuttle road, now named Starvine Way, President Chace appointed the Lullwater Task Force, charging the group to: ensure Lullwater’s boundaries and prohibit further encroachment; review all proposals for recreational, educational and/or ecological use of the land; monitor access points; and explore opportunities to maintain and enhance Lullwater’s ecological balance through reforestation and landscaping projects. (Emory Report. Feb. 7, 2000; Apr. 3, 2000)

2001 In response to a request by the VA Medical Center for Emory to build a bridge across Peachtree Creek, the Lullwater Task Force and the University Senate Committee on the Environment set up a joint committee to create a Comprehensive Management Plan for Lullwater that, among other benefits, would provide a framework for evaluating such proposals.

2002 “Rabid cat bites two in Lullwater Park.” (Emory Report. Feb. 11, 2002)



Figure 22 Last evidence of chemical dump in Lullwater (1999) when the site was delisted.

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Wildlife Species in Lullwater

Report submitted by Don Shure

Amphibians

Salamanders

Spotted salamander (Ambystoma maculatum) – ponds
Red spotted newt (Notophthalmus viridescens) – ponds
Dusky salamander (Desmognathus conanti) – streams
Southern two-lined salamander (Eurycea cirrigera) – streams
Three-lined salamander (Eurycea guttolineata) – streams
Northern red salamander (Pseudotriton ruber) – streams
Spring salamander (Gyrinophilus porphyriticus) – streams
Northern slimy salamander (Plethodon glutinosus) – land
Southern redback salamander (Plethodon serratus) – land

Frogs and toads

Fowler's toad (Bufo woodhousii)
Eastern narrowmouth toad (Gastrophyrne carolinensis)
Northern cricket frog (Acris crepitans)
Spring peeper (Pseudacris crucifer)
Upland chorus frog (Pseudacris triseriata)
Gray treefrog (Hyla chrysoscelis)
Green treefrog (Hyla cinerea)
Southern leopard frog (Rana utricularia)
Green frog (Rana clamitans)
Bullfrog (Rana catesbeiana)

Reptiles

Turtles

Box turtles (Terrapene carolina)
Eastern painted turtle (Chrysemys picta)
Red-eared slider (Trachemys scripta elegans)
Yellowbelly slider (Trachemys scripta scripta)
Eastern mud turtle (Kinosternon subrubrum)
Common musk turtle (Sternotherus odoratus)
Common snapping turtle (Chelydra serpentina)
Gulf coast spiny softshell (Apalone spinifera)

Lizards

Five-lined skink (Eumeces fasciatus)
Broadhead skink (Eumeces laticeps)
Southeastern five-lined skink (Eumeces inexpectatus)
Ground skink (Scincella lateralis)
Six-lined racerunner (Cnemidophorus sexlineatus)

Fence lizard (Sceloporus undulatus)

Green Anole (Anolis carolinensis)

Snakes

Copperhead (Agkistrodon contortrix)

Water snake (Nerodia sipedon)

Queen snake (Regina septemvittata)

Garter snake (Thamnophis sirtalis)

Brown snake (Storeria dekayi)

Eastern kingsnake (Lampropeltis getula)

Northern black racer (Coluber constrictor)

Rough green snake (Opheodrys aestivus)

Southern ringneck snake (Diadophis punctatus)

Eastern hognose snake (Heterodon platirhinos)

Rat snake (Elaphe obsoleta)

Species lists of amphibians and reptiles residing in Lullwater were compiled from numerous class trips involving the Biology Department's Ecology and Vertebrate Population Biology classes and from a long series of research projects (1971-2002) conducted at Lullwater by students in the Vertebrate Population Biology class.

Mammals

Report submitted by Tony Martin

Marsupials

Opossum (*Didelphis marsupialis*)

Insectivores

Southeastern shrew (*Sorex longirostris*)

Short-tailed shrew (*Blarina brevicauda*)

Eastern mole (*Scalopus aquaticus*)

Carnivores

Raccoon (*Procyon lotor*)

River otter (*Lutra canadensis*)

Mink (*Mustela vison*)

Long-tailed weasel (*Mustela frenata*)

Striped skunk (*Mephitis macroura*)

Gray fox (*Urocyon cinereargenteus*)

Red fox (*Vulpes fulva*)

Domestic dog (*Canis domesticus*)

Feral cat (*Felis domestica*)

Rodents

Beaver (*Castor canadensis*)

Muskrat (*Ondatra zibethica*)
Eastern gray squirrel (*Sciurus carolinensis*)
Southern flying squirrel (*Glaucomys volans*)
Eastern chipmunk (*Tamias striatus*)
White-footed mouse (*Peromyscus leucopus*)
Meadow vole (*Microtus pennsylvanicus*)
Norway rat (*Rattus norvegicus*)
House mouse (*Mus musculus*)

Rabbits/hares

Eastern cottontail (*Sylvilagus floridanus*)

Birds

Report submitted by Don Shure

Year round residents

Canada goose
Mallard duck
Great blue heron
Belted kingfisher
Red-tailed hawk
Great horned owl
Barred owl
Screech owl
Downy woodpecker
Hairy woodpecker
Red-bellied woodpecker
Red-headed woodpecker
Pileated woodpecker
White-breasted nuthatch
Brown-headed nuthatch
Northern flicker
European starling
Common grackle
Brown-headed cowbird
Red-winged blackbird
American crow
Bluejay
Eastern bluebird
Eastern towhee
Northern mockingbird
Rock dove
Mourning dove
Mockingbird
Brown thrasher
American robin
Cardinal
Gray catbird

Tufted titmouse
Carolina chickadee
Carolina wren
American goldfinch
Pine warbler
Yellow-rumped warbler
Chipping sparrow
Field sparrow
Song sparrow
House sparrow
House finch

Winter residents

Cedar waxwings
Dark-eyed junco
Golden-crowned kinglet
Ruby-crowned kinglet
Pied-billed grebe
White-throated sparrow
Yellow-bellied sapsucker

Summer residents

Barn swallow
Northern rough-winged swallow
Chimney swift
Common nighthawk
Great egret
Green heron
Eastern kingbird
Eastern wood pewee
Great-crested flycatcher
Indigo bunting
Red-eyed vireo
Ruby-throated hummingbird
Summer tanager
White-eyed vireo
Wood thrush
Yellow-breasted chat
Common yellowthroat
Blue-gray gnatcatcher

Spring/fall migrants (passing through)

Hooded merganser
Lesser scaup
Blue-winged teal
American coot
Spotted sandpiper

Blue grosbeak
Rose breasted grosbeak
Orchard oriole
Veery
Swainson's thrush
Black-billed cuckoo
Yellow-billed cuckoo
Orange-crowned warbler
Blackburnian warbler
Blue-winged warbler
Palm warbler
Nashville warbler
Parula warbler
Cape May warbler
Black-throated blue warbler
Black-throated green warbler
Prothonotary warbler
Connecticut warbler
Blackpoll warbler
Black and white warbler
Prairie warbler
Yellow-throat warbler
Tennessee warbler
Wilson's warbler
Yellow warbler
Golden-winged warbler
American redstart
Ovenbird
Bay-breasted warbler
Swainson's warbler
Chestnut-sided warbler
Magnolia warbler
Canada warbler

This list of bird species was compiled from annual class trips to Lullwater by the Biology Department's Vertebrate Population Biology class from 1971-2002, personal trips through Lullwater, the Atlanta Audubon's list of arrival/departure dates for Atlanta birds, and the detailed field observations of Mike Robison, a former graduate student in the Biology Department, throughout the spring 1978 migratory period in Lullwater.

LULLWATER SURVEY OVERVIEW

SATURDAY NOV. 17, 2001

PEOPLE.....Main Gate – 255
 Other Gates- 163

Total.....418

Dogs.....25

Bikes.....21

SUNDAY NOV. 18, 2001

PEOPLE.....Main Gate – 296
 Other Gates 77

Total.....373

Dogs.....51

Bikes.....56

Weekend Totals

People -- 791

Dogs ----- 76

Bikes----- 56

LULLWATER EVENTS USAGE 1994 – 2001

	1994	1995	1996	1997	1998	1999	2000	2001
January	none	No events	No events	No events	No events	No events	No events	No events
February	Picnic (90)	Kite fly (100)	No events	No events	No events	Kite Fly (30)	No events	No events
March	Run (200)	Run (200) Walk (80)	Run (75)	No events	Run (125) Pic (80)	Run (200)	Race (1050)	Run (150) Greek Life (400) Egg Hunt (20)
April	Playday (100) Run (50) Pic. (425) Reunion (600) Pictures (12)	Playday (300) Pic. (200) Reunion Fest (1000)	Run (140)	Run (125) Picnic (150)	Run (500) Pic (150) Walk (40)	Easter Service (30) Run (125) Pic (50)	Run (450)	Run (75)
May	Pic.(355) Run (340) Race (100)	Run (200)	Pic (50) Run (500)	Run (200)	Run (200)	Staff Day Run (200)	Run (75)	No events
June	Race (200) Walk (50)	Pic (75)	Pic (150)	No events	No events	Pic (30)	No events	No events
July	Run (25)	No events	Kid's Day (130) Pic. (400)	No events	No events	Youth Conf (100)	No events	No events
August	Pic (300)	Pic (300) Bike Ride (25)	Bike Ride (20)	No events	No events	Pic (80)	No events	International Students Pic (200)
September	Pic (310) Run (50)	Run (75) Race (75) Pic (20)	Pic. (100) Run (175)	Run (75)	Pic (75) Run (50) Lullwater Day (1000)	Run (75) Pic (100) Lullwater Day (1200)	Pic (100) Run (70) Lullwater Day (1000)	Race (150) Pic (75)
October	Run (250)	Run (50) Lullwater Day (1000)	Run (400)	Pic (60) Run (410)	Pic (70) Run (100) Race (300)	Run (100)	Run (300)	Race (75) Run (50)
November	No events	No events	Run (100)	Run (100)	Run (100) Race (100)	Run (80) Pic (40) Run	Pic (200) Run (300)	