The Legal Status of Urban Prescribed Grazing in Athens-Clarke County

A Suggested Ordinance

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I. Introduction

I. A. Abstract

This paper provides an assessment of the legal landscape of urban prescribed grazing in Athens-Clarke County. Prescribed grazing is defined as “the application of a specific kind of livestock at a determined season, duration, and intensity to accomplish defined vegetation or landscape goals.”\(^1\) Throughout the United States, the practice of urban prescribed grazing is becoming an increasingly used method of clearing and controlling the growth of unwanted invasive plant species. Research on this issue is ongoing at the University of Georgia and is led by Professor Eric MacDonald at the College of Environment and Design. This paper provides a legal analysis of urban prescribed grazing in Athens-Clarke County and suggests an ordinance for governing the practice that the authors recommend the county adopt. The authors’ work is a continued effort built upon existing research on urban prescribed grazing at The University of Georgia.\(^2\)

The adoption of an ordinance regulating urban prescribed grazing in Athens-Clarke County is needed because the practice is often an effective and environmentally sustainable method of landscape management that serves as an alternative to traditional and potentially harmful herbicides and mechanical removal techniques. Many large scale projects conducted by major cities in the U.S. have used urban prescribed grazing successfully, including airports in Chicago\(^3\) and San Francisco\(^4\). Moreover, the adoption of an ordinance would clarify public understanding of urban prescribed grazing and provide a standard against which to regulate and control the practice.

The goal of this paper is to clarify the implications and competing interests related to urban prescribed grazing such that a coherent, useful, and properly adapted legal framework governing the practice may be created in Athens-Clarke County. Currently, there are no governing provisions in the Athens-Clarke County Code of Ordinances that address the practice.

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\(^2\) The Tanyard Creek Chew Crew is a herd of goats that is currently working to improve a riparian corridor running through campus at The University of Georgia. The Tanyard Creek project site provides research opportunities into the practice and impact of prescribed grazing. Ugachewcrew.com.


of prescribed grazing. The proposed ordinance in this paper is not currently perfected for adoption, as additional research needs to be conducted. Specifically, best management practices (BMPs) for prescribed grazing need to be researched and integrated into the ordinance prior to implementation. Ultimately, implementation of an ordinance would be ideal because 1) the practice is currently being conducted in an illegal or quasi legal regime; 2) the use of goats and sheep as a landscape management tool represents a “low-input, non-polluting and non-toxic alternative to conventional invasive plant control techniques” and 3) Athens-Clarke County proscribes overgrown and undesirable vegetation.

This paper is intended to be useful and informative for a variety of audiences. The primary audience is the community and local government of Athens-Clarke County, as the proposed model ordinance is designed for this local government specifically. However, the process through which the proposed ordinance was drafted may be useful to other counties looking to implement a similar statute. Similarly, this paper may be informative for individuals or organizations interested in prescribed grazing or who wish to assist in the enactment of an ordinance in their local community. Based on their research, the authors expect that the practice of urban prescribed grazing will continue to gain traction and expand in popularity throughout the United States. As such, this paper may serve as a trailblazing effort to increase the awareness and accessibility of urban prescribed grazing for a national audience.

I. B. The Practice of Prescribed Grazing

Prescribed grazing is one of the oldest methods of invasive species control and removal used by humans. Defined as the “the application of a specific kind of livestock at a determined season, duration, and intensity to accomplish defined vegetation or landscape goals,” prescribed grazing has been used for thousands of years to reduce or eliminate unwanted invasive plant overgrowth.

The negative effects of invasive plant overgrowth are many. In fact, some scholars have called this type of invasive overgrowth “one of the most significant ecological threats of our modern era, rivaling even highly touted and researched concerns such as ozone depletion, global warming, and loss of biodiversity.” Further, uncontrolled invasive overgrowth can result in “increased soil erosion, degradation of wildlife habitat, and reduced carrying capacity for

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6 Athens-Clarke County, Georgia, Code of Ordinances, § 3-13-7.
livestock.” Not only is invasive plant overgrowth detrimental to the environment at times, it is unsightly and can prevent full use of the land on which the overgrowth exists.

Prescribed grazing may be used alone as a land management tool or in combination with other techniques such as herbicides, burning, mechanical tree harvesting, etc. The effectiveness and practicality of other landscape management techniques such as herbicides depends on the land to be treated. For example, the use of herbicides or mechanical treatments on rural or relatively uninhabited landscape of low economic value is unlikely or impracticable. In situations like these where economic or ecological limitations exist that prevent the practical use of other landscape management techniques, prescribed grazing may be the ideal, most effective solution.

I. C. Summary of Approach to Problem

I. C. 1. Problem

While acceptance of the practice of prescribed grazing in urban settings for large-scale, public projects has grown, there is still much hesitance about implementing the practice for smaller scale efforts on private land. Prescribed grazing is particularly useful on private land because it not only increases private landowners’ access to and use of their land, but it also limits the spread of invasive vegetation across property lines and is an alternative to the use of potentially harmful herbicides. Despite the positive benefits of and demand for the practice, both landowners and contractors are hesitant to engage in prescribed grazing in residential areas due to the legal implications of the practice.

I. C. 2. Overview of Current Law

In order to understand the legal landscape of prescribed grazing, research into the municipal codes of various cities was conducted. Currently, there is no ordinance in the United States that specifically addresses the practice of prescribed grazing in urban, residential areas.

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10 See note 7.
11 Interview with Private Landowner, Nov. 2013.
14 See Appendix D for before and after pictures of prescribed grazing sites.
15 While there are ordinances in some cities that permit the keeping of goats and sheep sufficient to facilitate prescribed grazing, the ordinances do not specifically govern the actual practice. For example, Atlanta permits the keeping of ten goats in areas not zoned for agriculture, but requires the goats and sheep to be kept a minimum of 150 feet from other occupied buildings. Atlanta, Georgia Code of Ordinances § 18-129(b)(2)-(4) 2012.
However, an ordinance is currently being drafted by a city councilman in Detroit to allow prescribed grazing in residential settings\(^\text{16}\), although likelihood of enactment is unclear.

In many cities, livestock animals are expressly prohibited in zones that are not approved for agricultural use, while other cities may allow backyard goats or sheep, but have limitations on the size and or number of livestock permitted.\(^\text{17}\) Such regulations make the practice of prescribed grazing in residential areas either illegal or legally ambiguous. In Athens-Clarke County specifically, livestock animals including goats and sheep are prohibited in many residential areas where there is both a demand for the use of this alternative land management technique and land conducive for the practice.

I. C. 3. The Legal Landscape in Athens

Before attempting to create an ordinance addressing the issues revealed in the interviews, a more in-depth understanding of the current legal status of the practice of prescribed grazing in Athens-Clarke County was necessary. Research of municipal codes in other cities revealed various legal frameworks in which the practice of prescribed grazing in residential areas was legal, or quasi legal. For example, Charlottesville, Virginia permits miniature goats to be kept “within any residential zoning district.”\(^\text{18}\) However, the restrictions placed on the keeping of goats makes prescribed grazing in the residential areas of Charlottesville impracticable; the ordinance prohibits more than three goats on one property.\(^\text{19}\) Boulder, Colorado also permits both sheep and goats on residential land, but poses an impediment to prescribed grazing by requiring that there be “one-half acre per animal.”\(^\text{20}\)

Other cities do not expressly address the keeping of goats, but its permissibility can be implied through the reading of other sections of the code. For example, local code in Oakland, California does not expressly state that goats and sheep are allowed on residential properties. However, Oakland code does state that specific uses of residential buildings require that the buildings be “constructed and maintained impervious to the ingress of insects, rodents and other vector…” and lists the “raising or housing” of goats and sheep as one of the specified uses.\(^\text{21}\)

Codes in other cities expressly prohibit the keeping of goats and sheep in certain urban, residential areas. Bloomington, Indiana limits the keeping of sheep and goats only to areas


\(^{18}\) Charlottesville, Virginia Code of Ordinances Ch. 4 § 4-9(a) (2013).

\(^{19}\) See Note 17. Ch. 4 § 4-9(b)(3).


\(^{21}\) Oakland, California Code of Ordinances § 15.08.230 Q(2) (2013).
designated as a “Residential Estate.” Residential Estates are defined as areas where the zoning intent is to “permit rural development while protecting sensitive environmental resources.” Athens similarly prohibits the practice of prescribed grazing through zoning ordinances.

The Athens-Clarke County zoning ordinance defines “Agriculture” to include the grazing of sheep and goats. Therefore, the practice of prescribed grazing is limited to only those areas in the county where agriculture is listed as a permitted use. In Athens-Clarke County, “Agriculture” is only permitted in those single-family lots that have a minimum lot area of 25,000 square feet, and are zoned as RS-25 or RS-40. Lots that meet these requirements are located in more rural areas of Athens-Clarke County. Moreover, even on properties zoned to permit livestock, there is a minimum lot size requirement of an acre and a maximum of two animals can be kept.

Athens-Clarke neighborhoods with land conducive for the practice of prescribed grazing do not meet these qualifications. For example, the Boulevard neighborhood not only has interest in the practice, but there is also land where the use of goats and sheep would be effective to manage the invasive vegetation and revitalize the area. However, all of the lots in the Boulevard neighborhood are zoned as RS-15, RS-8, and RS-5, meaning the lots meet the minimum requirements of 15,000, 8,000, and 5,000 square feet, respectively. None of these designations meet the minimum requirement of 25,000 square feet necessary to permit the practice of “Agriculture,” and thus prescribed grazing.

I. C. 4. Solution to Legal Landscape in Athens

In order to permit the practice of prescribed grazing in Athens-Clarke County, the zoning ordinance would have to be addressed, specifically the current inclusion of the grazing of sheep and goats in the definition of agriculture. Changing the zoning of the lots where prescribed grazing is illegal is not only infeasible but would create a formidable shift in the entire zoning law of Athens-Clarke County. Instead, the suggested ordinance addresses prescribed grazing without completely disrupting the zoning code. This is achieved by creating a specific definition for urban prescribed grazing in the code and redefining the use of sheep and goats for prescribed grazing as “landscape management animals.” Moreover, the suggested ordinance specifically states that for the purposes of the ordinance, sheep and goats used for the practice of prescribed grazing are not included the definition of “Agriculture” as defined in § 9-2-1 of the Athens-Clarke County Code.

23 See Note 22. § 20.02.010.
24 See Note 6. § 9-2-1.
25 See Note 6. § 9-7-2.
26 See Note 6. § 9-7-2.
27 Interview with private landowner, Nov. 2013.
28 See Appendix A for the 2006 Athens-Clarke County Official Zoning Map.
II. Summary of Findings from Interviews

II. A. Relevant Parties

In order to fully comprehend the issues and concerns, as well as the logistics surrounding prescribed grazing, interviews were conducted with relevant parties prior to drafting. In selecting relevant parties, individuals clearly expressing positive interest in the practice in a residential setting were first identified. This includes goat and sheep owners, parties with prescribed grazing contracting experience, and landowners in residential areas interested in the use of prescribed grazing on their property.

In addition to parties showing positive interest, parties more likely to highlight issues of concern surrounding the potential practice in residential areas were also identified. These individuals include neighborhood association leaders, a university professor specializing in environmental health science and a university professor specializing in hydrology and water resources.

Lastly, we identified Athens-Clarke County government actors to address issues surrounding public sentiment, potential proposal and enactment of the ordinance, as well as enforcement. These relevant parties include an Athens-Clarke County commissioner and an official in the Athens-Clarke County zoning and planning department.

II. A. 1. Goat Owner and Parties with Contracting Experience

Interviews with goat owners and parties with contracting experience revealed information about the proper way to go about managing a prescribed grazing project, as well as the commonly experienced situations and results of such projects. All parties agreed that there is a high demand for prescribed grazing services in Athens. This was measured by the frequency of requests for prescribed grazing services and the satisfaction of existing customers with completed projects. One party experienced in contracting for prescribed grazing in Atlanta (where urban prescribed grazing is legal), reported that the demand for urban prescribed grazing services is so high that the waiting list is thousands of people long and could result in years of waiting for landowners seeking the service. Another party reported that she has personally experienced a tremendous demand for her urban prescribed grazing services in Athens-Clarke County, however her hesitance to work in an area where the practice is illegal or quasi-legal has prevented her from pursuing work in the County.

In addition to the effectiveness of the practice in removing unwanted vegetation, all interviewed parties agreed without hesitation that the promulgation of prescribed grazing in Athens would be for the ultimate benefit of the community for several reasons. First, the addition of local prescribed grazing businesses would be of economic benefit to the community through the creation of jobs, while consumers may also benefit economically, since the cost of prescribed grazing

29 See Appendix B for the process used to draft interview questions.
grazing is competitive with and could be more effective than other landscape management techniques. Our interviews revealed that in Athens, goats and sheep are a high value, economical service costing an average of only $2 to $3 per day. Although the number of goats and sheep as well as time needed for each project varies with the amount of vegetation to be cleared, a general estimate is that ten animals can clear an acre of thick vegetation in ten days, generating an average cost of $200 to $300 per acre. More than one grazing treatment is usually required for land that is particularly difficult to clear; however the number of treatments ultimately depends on the landowner’s goals. In comparison, herbicide application for an acre of invasive vegetation costs an average of $165 per application, with a full treatment requiring from 6 to 8 applications per year; multiple years of treatment may be necessary to totally eliminate the vegetation.30

Second, the interviewees unanimously reported a positive effect on the community accompanying the presence of an urban prescribed grazing project. The interviews indicated that while the grazing goats and sheep were present on the designated property, neighbors and children from surrounding areas came to visit the property and watch the animals do their work. In addition, children enjoyed interacting with the animals and occasionally being able to pet them. The interviewees noted that due to the relatively docile nature of the animals, people came to gather and socialize amongst themselves while observing and enjoying the animals. These reports are consistent with the information gathered in other interviews with private landowners which are summarized below.

Third, the interviewees stated that in addition to the efficiency and economy of urban prescribed grazing, a primary motivation for building a prescribed grazing business was the environmental sustainability of the projects. The interviewees referenced the historical nature of the practice and the ecological benefit of refraining from use of herbicides or machines that expend resources from limited energy supplies.

Further, the information gathered from these interviews revealed that professionalism is one of the most important factors to be considered when planning and implementing a prescribed grazing project. The interviewees emphasized the necessity of following specified procedures during prescribed grazing projects, such as the use of electric fencing and/or guard dogs to protect the grazing animals from outside disturbances as well as to ensure they do not escape. Interviews with private landowners also indicated the necessity of professionalism, described further below. Finally, an interview with one party revealed that above all, the most important aspect of professionalism for a business or individual engaged in an urban prescribed grazing project is the continued availability of the project leader or owner of the animals to address any potential problems or questions that the landowner may encounter. The information gathered also made clear that those engaged in the practice must check on the animals at least every other day to assure the project is going as planned and deal with any unexpected issues or concerns that the landowner may have.

30 This price was generated by speaking to an Atlanta-based, professional herbicide company.
II. A. 2. Landowners and Neighborhood Association Leaders

Interviews with private landowners and neighborhood association leaders were also instructive. The neighborhood of residence of each party seemed to inform the perspective taken on the issue. The representative of an older, historic district in Athens-Clarke County explained that urban prescribed grazing was not an issue that members of his neighborhood had considered or addressed in any way, because there is simply no area of land within the neighborhood that is particularly conducive to the practice. The representative also indicated that based on the neighborhood reaction to previous incidents involving “nontraditional” animals such as chickens or coyotes, most members of his neighborhood would likely not be in favor of the practice of urban prescribed grazing, at least initially. The interview revealed community concern about noise, odor, and safety issues commonly associated with the presence of large groups of animals.

In contrast, an interview with a private landowner in a neighborhood close by expressed a different perspective. The private landowner reported on her experience as a landowner currently engaged in a prescribed grazing project. The private landowner expressed that the community response to the project was overwhelmingly positive, with many surrounding neighbors asking if and when they could hire the animals for their own properties. In addition, she said that she and her husband have been interacting with their own land more than ever before since it has been cleared through grazing. With regard to implementation of the project, she also expressed that the most important aspect of the entire process was the continued availability of the animal owners. The ability to contact and receive a response to questions and unforeseen incidents that arose with the animals was critical to enabling her to feel comfortable with the process from start to finish.

II. A. 3. Professors Specializing in Environmental Studies

Interviews with professors specializing in environmental studies revealed that many of the commonly cited issues of concern related to urban prescribed grazing such as the fear of water degradation or soil erosion are for the most part unwarranted. However, these professors also acknowledged the difficulty of making conclusions about these issues as scientific research about the environmental effects of prescribed grazing is limited.

One professor recommended that those engaged in the practice of prescribed grazing comply with the existing best management practices issued by the Georgia Soil and Water Conservation Commission. Compliance with these standards, the professor reported, would be useful in the efforts to prevent potential water quality degradation and soil erosion. Additionally, the interviews revealed that urban streams are often already so contaminated with fecal coliform and other bacteria that the temporary addition of sheep and goats is unlikely to add to the problem in a meaningful way. The professors did note that prompt and proper disposal of fecal
matter is recommended to prevent human exposure to bacteria; however there is little scientific confirmation of the true dangers of such exposure.\textsuperscript{31}

II. A. 4. Athens-Clarke County Government Actors\textsuperscript{32}

Interviews with local government actors were useful in assessing potential public response to a prescribed grazing ordinance as well as the factors that a proposed ordinance should contain if it were to be adopted. The interviewed commissioner indicated that the public opinion towards the practice of prescribed grazing is not clear. However, she believed that a prescribed grazing ordinance would be a positive addition to the Athens-Clarke County community. Further, she noted that there are specific areas in the County that are well-suited to the practice.

In another interview, a local planning and zoning official expressed concern regarding the enforcement of the ordinance. First, without knowing when and where projects are taking place, local officials will have trouble regulating the practice. By requiring application for a permit prior to the start of an urban prescribed grazing project, local enforcement officials will have knowledge of where the projects are and will be able to ensure that the project is being conducted in compliance with the code. In applying for a permit, the landowner will provide information about the duration and location of the project, as well as the number of animals to be used.

In addition, enforcement is difficult without clear standards governing the duration and number of animals allowed per project. For instance, in the absence of express time limits some may attempt to keep backyard goats under the guise of a prescribed grazing project. The official advised that any potential code address these issues with clarity, otherwise people will attempt to construe the code contrary to its intent.

\textsuperscript{31} A professor in the Environmental Health Science department at The University of Georgia is currently studying the environmental impact of goat excrement at the Tanyard Creek prescribed grazing site at The University of Georgia.

\textsuperscript{32} At this time we are still in the process of arranging an interview with Craig Page, as he has been out of the country. He will give useful insight on enactment and enforcement of the proposed ordinance.
III. Proposed Ordinance\textsuperscript{33}

The authors propose that this ordinance be adopted in the planning and zoning chapter of the Athens-Clarke County Code of Ordinances, specifically § 9-15. The text in italics is explanatory and is not actual text of the proposed ordinance.

Definitions.

We suggest the insertion of these definitions into Section 9-2-1 of the Athens-Clarke County, Georgia, Code of Ordinances, if it is found that the proposed ordinance should be incorporated in the zoning law.

Urban Prescribed Grazing: The practice of using goats and sheep as a landscape management technique to control invasive or unwanted plant species.

Landscape management animals: Goats and sheep used for the purpose of urban prescribed grazing.

Best management practices (BMPs): Conservation practices or management measures which control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxins, sediment and runoff. For the purposes of this chapter, best management practices shall be considered to be the most recent publication of those practices or measures officially promulgated by the State of Georgia, the Federal Government or the Unified Government of Athens-Clarke County.\textsuperscript{34}

Sec. 9-XX-1. Purpose.

Invasive plant species are rampant in many parts of the state of Georgia including Athens-Clarke County. Areas overrun with these invasive plant species have been defined as a nuisance and adequate measures should be taken so that citizens have access to resources that will help them abate this nuisance. See Sec. 3-13-7. Undesirable vegetation.

\textit{Section 3-13-7 reads as follows:}

\textit{It shall be unlawful for the owner and/or occupant of any occupied lot of land in Athens-Clarke County, or the owner of any unoccupied lot in Athens-Clarke County, or for any agent or representative of any such occupant or owner, to permit or maintain on such lot any growth of undesirable vegetation. The complaint and inspection of undesirable vegetation shall be as set forth in section 3-13-6.}

\textsuperscript{33} See Appendix C for an unannotated version of the suggested ordinance.

\textsuperscript{34} The inclusion of this definition may change following further scientific research into the ecological impact of prescribed grazing.
Urban prescribed grazing is a landscape management technique that is effective in the control and removal of unwanted invasive plant species. The use of urban prescribed grazing has been shown to be a cost and energy effective alternative to the use of herbicides and mechanical removal. Further, the use of land management animals in clearing large areas of unwanted plant overgrowth may be more protective of biological, soil and water resources.

Sec. 9-XX-2. Generally.

For the purpose of this section:
(a) Landscape management animals used for the purpose of urban prescribed grazing are not included within the definition of “Agriculture” as defined in Section 9-2-1, of the Athens-Clarke County, Georgia, Code of Ordinances.

Definition of “Agriculture” in Section 9-2-1 reads as follows:

The production, raising, breeding or maintenance of plants and animals including, but not limited to: forage and sod crops; grain and seed crops; dairy animals and dairy products; poultry and poultry products; livestock, including beef cattle, sheep, swine, horses, or goats, game animals, exotics, fish, and any mutations or hybrids thereof, including the breeding and grazing of any or all such species; bees and apiary products; fur animals; trees and forest products; fruits of all kinds, including grapes, nuts, and berries; vegetables; nurseries; florals; ornamental and greenhouse products; or lands devoted to a soil conservation or forestry management program. This does not include the commercial slaughter of poultry, livestock, or other animals.

(b) In addition to the requirements of this section, landscape management animals shall also be subject to the provisions in Article 2 of Chapter 4-1. Animal Control.

Chapter 4-1 of the Athens-Clarke County Ordinance includes solutions to many of the issues revealed in the interviews. While there is a distinction between domestic animals and livestock in Article 2 of Chapter 4-1, with goats and sheep categorized as livestock, application of the provisions in Article 2 of Chapter 4-1 irrespective of whether the specific provision references domestic animals or livestock is necessary for completeness of coverage. Specific provisions and the concern that they address include:

- Section 4-1-2, addressing the need to keep animals under control and confined to prevent intrusion or escape.
- Section 4-1-3, addressing the welfare of animals, including the requirements of shelter for the animal, clean, potable water, prompt removal of excrement and debris to “minimize vermin infestation, contamination, odors, and disease hazards,” and sufficient space for the animals to exercise.
• Section 4-1-4, prohibiting the animal from going upon the property of another person without consent, attack by the animal on others, disturbance of the peace by the any animal through yelping or whining.
• Section 4-1-5, prohibiting animals from “running at large.”

In order to effectuate the application of the relevant laws in Chapter 4-1 to landscape management animals, the following amendments are suggested in Chapter 4-1:
• The addition of “landscape management animals” and “urban prescribed grazing” to the definitions in § 4-1-1. The definition should be the same as the definitions in the proposed ordinance.
• The inclusion of and specific reference to “landscape management animals” in the following provisions:
  o § 4-1-2
  o § 4-1-3
  o § 4-1-4
  o § 4-1-6

Sec. 9-XX-3. Requirements.

These requirements are supplementary to the existing provisions in Chapter 4-1.

(a) Proper enclosures. Landscape management animals must be properly enclosed. “Properly enclosed” means the use of an electric fence designed to prevent the escape of the landscape management animals and to protect them from the intrusion of outside animals or disturbances. All sides of the electric fence shall be of sufficient height and the bottom of the fence shall be constructed or secured in such a manner as to prevent landscape management animal escape either from over or from under the fence.

(b) Welfare. The welfare of the landscape management animals must be ensured by the owners of the landscape management animals. In addition to the requirements under Article 2 in Chapter 4-1, the following provisions apply:

1. Supervision. The owner must ensure the proper supervision of the landscape management animals. Proper supervision means that an experienced, properly trained individual must check on and attend to the animals at least every other day for the duration of the prescribed grazing project. Further, an experienced, properly trained individual must be available for timely contact by the landowners for the duration of the prescribed grazing project.

2. Health. Landscape management animals must receive proper veterinary treatment including vaccinations and regular de-worming. In the event a landscape management animal becomes ill or hurt, the owner of the landscape management animal must see to
their immediate care, or in the event of death, the prompt removal of the landscape management animal’s body from the landowner’s property.

*If the urban prescribed grazing project entails the use of a temporary structure to house the landscape management animals, a permit must be obtained in accordance with Section 7-1-6.*

*The suggested ordinance requires an “experienced, properly trained individual” to supervise the landscape management animals; however, research needs to be conducted to identify what standards should govern professionalism. Professionalism could be insured by establishing a training or licensing program through The University of Georgia Agricultural Extension.*

(c) Water and Soil Degradation. All urban prescribed grazing which occurs or is proposed to occur within either the floodplains, riparian buffer areas, including protected rivers, wetlands, or significant groundwater recharge areas shall comply with the best management practices established by the Georgia Soil and Water Conservation Commission, shall not impair the quality of the water as defined by the Federal Clean Water Act, and shall comply with all state and federal laws and all regulations promulgated by the Georgia Department of Agriculture, including the best management practices established by the Natural Resources Conservation Service.

*The current ordinances governing soil erosion, sedimentation and pollution control address the potential concerns expressed by the professors in the interviews conducted. Specifically, Section 8-6-3(b)(7) states that a permit is required if any “substantial clearing of vegetation...alters the nature of the existing vegetation” occurs within floodplains and riparian buffer areas, including protected rivers, wetlands, or significant groundwater recharge areas. However, an environmental permit review is not required for “ordinary maintenance of buildings and yards,” which would likely include the practice of urban prescribed grazing in residential areas.*

*It is important to note that, pending research regarding the environmental impact of prescribed grazing, specifically soil and water quality issues, best management practices for prescribed grazing may be created. If established, these practices should be included in this section of the proposed ordinance as well.*
(d) Notice. Any urban prescribed grazing site shall have signage providing notice to the public of:

1. The prescribed grazing project;
2. Expected duration of the project;
3. Contact information for the owner(s) of or responsible party for the land management animals; and
4. Electric fencing.

Section 7-4-7 of the Athens-Clarke County, Georgia Code of Ordinances exempts warning and safety signs from the general prohibition on signage in residential areas. The authors believe the Notice provision in the proposed ordinance qualifies for this residential signage exception.

(e) Neutering. Male goats used under this section for the purpose of urban prescribed grazing must be neutered.

This is recommended because unneutered male goats emit an odor and may display bothersome behavior. Additionally, neutering will eliminate the risk of feral goat populations. (Salter, et al. 2013).

Sec. 9-XX-4. Duration, Number of Landscape Management Animals Permitted.

(a) Backyard Goats. This section shall not be construed to allow backyard goats generally or permanent residence of landscape management animals on a landowner’s property. Such animals shall only be permitted on a property while actively engaged in the process of urban prescribed grazing.

(b) Time. Landscape management animals shall not remain on a project site for a duration longer than fifteen (15) consecutive days at a time, not to exceed sixty (60) days per year.

(c) Number of Animals. No more than twenty (20) landscape management animals are permitted per acre.

The duration and number of animals required for an urban prescribed grazing project varies with the landowner’s goals and the amount and type of invasive vegetation. However, limitations must be in place to guide enforcement. The duration limitation in this ordinance reflects the average project length of two weeks, but permits repeat grazing if needed, without allowing the ordinance to be construed as permitting the keeping of backyard goats. The stocking rate limitation in the ordinance provides flexibility to prescribed grazing project managers while protecting against overcrowding.
Sec. 9-XX-5. Permits.

Special use permits shall be applied for in accordance with the requirements of Chapter 9-20 prior to the commencement of an urban prescribed grazing project.

Sec. 9-XX-6. Penalty.

Any person violating this chapter shall be punished pursuant to the provisions of section 1-1-5 of the Code of Athens-Clarke County.

IV. Conclusion

IV. A. Guidance for Athens-Clarke County and Other Jurisdictions

Because each jurisdiction seeking to enact an urban prescribed grazing ordinance will need to adapt the ordinance to the existing code provisions of their local government, this paper does not include a model ordinance that may be adopted wholesale by another jurisdiction. Instead, the proposed ordinance is directed towards the local government of Athens-Clarke County. Amending the zoning law is necessary to allow prescribed grazing in Athens-Clarke County; however, implementing a prescribed grazing ordinance in other cities may require a different approach and amendment of provisions other than the city’s zoning law. Nevertheless, there are several factors and issues that the authors recognized to be of importance to be included in the Athens-Clarke County ordinance, many of which will translate to other jurisdictions and may be useful for consideration by others seeking to enact a similar ordinance.

The first factor is professionalism. The authors’ research reveals that perhaps the single most important factor to the maintenance of a successful urban prescribed grazing project is the professionalism of the project director. This includes the ability of the project director to provide proper supervision to the animals and the project as a whole. As the included ordinance provides, “[p]roper supervision means that an experienced, properly trained individual must check on and attend to the animals at least every other day for the duration of the prescribed grazing project. Further, an experienced, properly trained individual must be available for timely contact by the landowners for the duration of the prescribed grazing project.”

The reason for this is that it greatly enhances community safety and comfort with the practice because the community is aware that the goats are being properly monitored. One private landowner engaged in the practice remarked that the primary reason for the success of the prescribed grazing project on her land was her ability to contact the project directors at any time with her questions, and have them available to come check on the animals regularly and deal with unexpected issues that came up, which she would not have known how to deal with on her own. Further, much resistance to the practice comes from community members concerned about safety and nuisance issues related to the presence of the animals, including the possibility of their escape from the designated land, noise, odor, and cleanliness. With the regular supervision and maintenance of the prescribed grazing site by a trained professional and the assurance of such to the community, many of these concerns are mitigated.
Second, Best Management Practices (BMPs) should be established. As a heretofore less-practiced method of landscape management, urban prescribed grazing has yet to be thoroughly studied by the scientific and environmental community. Currently, there is a study underway at the University of Georgia which will add to the existing knowledge about the environmental effects of the practice. Once more is known, the information may be used to aid in the establishment of BMPs. It is possible that one set of BMPs will be universally applicable. Still, they are needed in order to address not only the potential environmental impact of the practice, but also potential public health concerns. Until these are more firmly established, the authors suggest compliance with existing regulations concerning the public health issues related to domestic animals and livestock.

Third, the authors suggest that any potential ordinance require on-site safety notice to the public which includes contact information of the project director. This is to enhance public trust and confidence in such projects, as well as to provide assurance that the projects are being properly maintained by a trained professional. Further, such notice allows community members to assist in the supervision of the project should they choose, by enabling them to report any disturbances or questionable occurrences on the project site to the project director.

Finally, it is important for any potential ordinance to distinguish between backyard goat keeping and what the authors have designated “landscape management animals,” i.e. goats and sheep used for the practice of urban prescribed grazing. This is because the purpose for allowing urban prescribed grazing is to increase public access to an effective, ecological landscape management tool. The keeping of backyard goats implicates other concerns which are not addressed in this paper, and serves a distinct purpose from urban prescribed grazing. The authors have not found that the ability of goats and sheep to permanently reside on a property is a necessary component to the practice of urban prescribed grazing, and recommend that issues surrounding the keeping of backyard goats and sheep be addressed separately because of their different effects and implications on the community. Distinctions such as these are community specific, and it is recommended that they be dealt with as such.

### IV. B. Role for Future Students

Prior to the proposal and adoption of the ordinance, the environmental impact of prescribed grazing needs to be better understood. There are studies currently underway in conjunction with the Tanyard Creek Chew Crew project which will shed light on this issue. Specifically, a University of Georgia professor is testing the impact of the goats on the water quality at Tanyard Creek. When the study is complete, Spring 2014 Practicum students can use the results to amend the “Water and Soil Degradation” section in the proposed ordinance as needed. Moreover, following more research conducted by Spring 2014 Practicum students on the environmental impact of prescribed grazing, best management practices may need to be established for contractors engaged in prescribed grazing. If established, these BMPs should also be included in the ordinance. Lastly, future students can help establish a professionalism program with The University of Georgia Agricultural Extension.

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35 See Note 31.
When the drafting of the ordinance is finalized, future students can identify an Athens-Clarke County Commissioner willing to support the ordinance. The Commissioner will then propose the ordinance to their assigned committee and to the Mayor for approval to be placed on the agenda. If the ordinance is placed on the agenda, the Commission will hold a vote.
APPENDIX A
Boulevard Neighborhood

LEGEND
- AR, Agricultural Residential
- RS-40, Single-Family Residential
- RS-25, Single-Family Residential
- RS-15, Single-Family Residential
- RS-4, Single-Family Residential
- RS-3, Single-Family Residential
- RM-1, Mixed Density Residential
- RM-2, Mixed Density Residential
- RM-3, Mixed Density Residential
Prior to conducting the interviews, questions were drafted with the specific party in mind. However, some interview questions were directed at every interviewee, regardless of their background. Each party was asked questions to assess their knowledge with regard to prescribed grazing, their experience with the practice, and the individual’s personal sentiment towards the use of goats and sheep as a land management technique. In addition, every individual was asked whether they believe Athens-Clarke County specifically presents any advantages or disadvantages for the implementation of prescribed grazing. Lastly, every interviewee was asked if there is anything that they think should be specifically addressed or included in an ordinance allowing and regulating prescribed grazing in urban, residential areas in Athens-Clarke County.

In crafting specific questions for the goat and sheep farmer, as well as the parties with contracting experience, more emphasis was placed on the logistics of prescribed grazing. This included details about past contracting experiences, the effectiveness of the practice in combating invasive vegetation, and the required number of livestock and amount of time necessary for an effective prescribed grazing project. Questions were also drafted to address management techniques necessary to maintain the welfare of the animal and to prevent disturbance by the goats and sheep, including escape.

Questions drafted for the professors specializing in environmental studies focused specifically on the public health concerns surrounding prescribed grazing and its potential environmental impact. Both professors were asked what their knowledge was, if any, regarding the impact of prescribed grazing on water quality and whether the grazing could lead to harmful soil erosion. The professor specializing in environmental health science was asked questions specifically addressing the effects of exposure to the excrement from the sheep or goats. In highlighting any potential environmental or public health concerns, the professors were asked if they believed there were any means of mitigating the hazards posed. Lastly, both professors were asked how they would evaluate the environmental impact of prescribed grazing as compared to conventional vegetation management techniques, i.e. mechanical removal and herbicide applications.

Questions designed for government actors, specifically the commissioner and planning department official, focused on public sentiment and enactment and application of a proposed prescribed grazing ordinance for Athens-Clarke County. Both officials were asked why Athens-Clarke County has not addressed the practice of prescribed grazing in urban settings already and what they believed the likelihood is that a proposed ordinance would be considered, let alone adopted. The officials were also specifically asked what the process would be for proposing the ordinance, and how they believe enforcement of a potentially adopted ordinance would be best implemented.
Lastly, neighborhood association representatives and private landowners were asked questions focusing on whether they believe the practice of prescribed grazing could feasibly be implemented in their neighborhood and what they think the potential effects would be if goats and sheep were used as land management tools in their neighborhood. These parties were specifically asked if they were aware of fellow neighbors implementing prescribed grazing or if they were aware of any interest expressed in the practice. In addition to being asked a whether the practice of prescribed grazing would be beneficial in their neighborhood, the neighborhood representatives were also asked to identify any particular concerns or hesitations landowners would have regarding the use of goats and sheep as a vegetation-management technique.
APPENDIX C

Proposed Ordinance

The authors propose that this ordinance be adopted in the planning and zoning chapter of the Athens-Clarke County Code of Ordinances, specifically § 9-15. The text in italics is explanatory and is not actual text of the proposed ordinance.

Definitions.

Urban Prescribed Grazing: The practice of using goats and sheep as a landscape management technique to control invasive or unwanted plant species.

Landscape management animals: Goats and sheep used for the purpose of urban prescribed grazing.

Best management practices (BMPs): Conservation practices or management measures which control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxins, sediment and runoff. For the purposes of this chapter, best management practices shall be considered to be the most recent publication of those practices or measures officially promulgated by the State of Georgia, the Federal Government or the Unified Government of Athens-Clarke County.

Sec. 9-XX-1. Purpose.

Invasive plant species are rampant in many parts of the state of Georgia including Athens-Clarke County. Areas overridden with these invasive plant species have been defined as a nuisance and adequate measures should be taken so that citizens have access to resources that will help them abate this nuisance. See Sec. 3-13-7. Undesirable vegetation.

Urban prescribed grazing is a landscape management technique that is effective in the control and removal of unwanted invasive plant species. The use of urban prescribed grazing has been shown to be a cost and energy effective alternative to the use of herbicides and mechanical removal. Further, the use of land management animals in clearing large areas of unwanted plant overgrowth may be a more environmentally friendly and sustainable approach to controlling such invasive species.
Sec. 9-XX-2. Generally.

For the purpose of this section:
(a) Landscape management animals used for the purpose of urban prescribed grazing are not included within the definition of “Agriculture” as defined in Section 9-2-1, of the Athens-Clarke County, Georgia, Code of Ordinances.

(b) In addition to the requirements of this section, landscape management animals shall also be subject to the provisions in Article 2 of Chapter 4-1. Animal Control.

Sec. 9-XX-3. Requirements.

(a) Proper enclosures. Landscape management animals must be properly enclosed. “Properly enclosed” means the use of an electric fence designed to prevent the escape of the landscape management animals and to protect them from the intrusion of outside animals or disturbances. All sides of the electric fence shall be of sufficient height and the bottom of the fence shall be constructed or secured in such a manner as to prevent landscape management animal escape either from over or from under the fence.

(b) Welfare. The welfare of the landscape management animals must be ensured by the owners of the landscape management animals. In addition to the requirements under Article 2 in Chapter 4-1, the following provisions apply:
   1. Supervision. The owner must ensure the proper supervision of the landscape management animals. Proper supervision means that an experienced, properly trained individual must check on and attend to the animals at least every other day for the duration of the prescribed grazing project. Further, an experienced, properly trained individual must be available for timely contact by the landowners for the duration of the prescribed grazing project.
   2. Health. Landscape management animals must receive proper veterinary treatment including vaccinations and regular de-worming. In the event a landscape management animal becomes ill or hurt, the owner of the landscape management animal must see to their immediate care, or in the event of death, the prompt removal of the landscape management animal’s body from the landowner’s property.

(c) Water and Soil Degradation. All urban prescribed grazing which occurs or is proposed to occur within either the floodplains, riparian buffer areas, including protected rivers, wetlands, or significant groundwater recharge areas shall comply with the best management practices established by the Georgia Soil and Water Conservation Commission, shall not impair the quality of the water as defined by the Federal Clean Water Act, and shall comply with all state and federal laws and all regulations promulgated by the Georgia Department of Agriculture,
including the best management practices established by the Natural Resources Conservation Service.

(d) Notice. Any urban prescribed grazing site shall have signage providing notice to the public of:
   1. The prescribed grazing project;
   2. Expected duration of the project;
   3. Contact information for the owner(s) of or responsible party for the land management animals; and
   4. Electric fencing.

(e) Neutering. Male goats used under this section for the purpose of urban prescribed grazing must be neutered.

Sec. 9-XX-4. Duration, Number of Landscape Management Animals Permitted.

(a) Backyard Goats. This section shall not be construed to allow backyard goats generally or permanent residence of landscape management animals on a landowner’s property. Such animals shall only be permitted on a property while actively engaged in the process of urban prescribed grazing.

(b) Time. Landscape management animals shall not remain on a project site for a duration longer than fifteen (15) consecutive days at a time, not to exceed sixty (60) days per year.

(c) Number of Animals. No more than twenty (20) landscape management animals are permitted per acre.

Sec. 9-XX-5. Permits.

Special use permits shall be applied for in accordance with the requirements of Chapter 9-20 prior to the commencement of an urban prescribed grazing project.

Sec. 9-XX-6. Penalty.

Any person violating this chapter shall be punished pursuant to the provisions of section 1-1-5 of the Code of Athens-Clarke County.
APPENDIX D

Before

After

Photos credited to Ewe-niversally Green
http://eweniversallygreen.com/photos/before_and_after