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With One Stroke of the Pen: How Can Wildlife Extension Specialists Involve Developers and Policy-Makers in Wildlife Conservation?

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Abstract: Residential developments have a huge impact on natural resources and wildlife, and sustainable or “green” communities are beginning to be built throughout the United States with goals to conserve wildlife habitat, to create healthy lifestyles, and to promote a sense of community. Buzzwords can be heard in the media and in town meetings: *sustainability*, *smart growth*, *new urbanism*, *low impact development*, and *conservation subdivisions*. Ultimately, with one stroke of a pen, developers and policymakers can determine how a community will look and feel for many years to come. Plus, citizens make day-to-day decisions that determine whether a community operates as intended by policymakers and developers. How can wildlife professionals help homeowners, developers, and policymakers make informed decisions about building and managing wildlife-friendly communities? We briefly present some outreach efforts as part of a new program at the University of Florida called the Program for Resource Efficient Communities (PREC – <http://energy.ufl.edu>). PREC has been actively partnering with several developers and build/design professionals to create “model” resource-efficient communities. Working with two master-planned Florida communities, *Madera* and the *Town of Harmony*, we have encountered both successes and failures. In this paper, we explore how wildlife professionals can partner with developers, policymakers, and homeowners. In particular, we focus on ways to engage developers and policymakers. Reaching these audiences has not been a tradition for wildlife professionals, but developers and policymakers play a major role in creating healthy, wildlife-friendly communities.

Key Words: extension, green communities, sustainable development, urban, wildlife

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Introduction

Urban growth management is a critical issue in the United States. Patterns of urban growth not only impact ecosystems (Pickett et al. 2001, Alberti 2005), but they also affect public health and livability (e.g., Lawrence and Engelke 2005). With an eye on how expanding metropolitan areas impact the environment and the livelihoods of people, municipalities are trying to implement sustainable practices in their communities (Arendt 1999, Calthorpe and Fulton 2001). The hierarchy of decisions made by homeowners, design/build professionals, and policymakers interact in dynamic ways to either enhance or inhibit sustainable practices. In order to integrate sustainability principles into the public arena, one must not only demonstrate the ecological efficiency and economic viability of particular strategies, but the public and private sector must understand and accept a practice. Sustainable development crosses multiple domains and includes at least three: the economic, the ecological, and the social-cultural domains (Grimm et al. 2000, Grosskurth and Rotmans 2005).

Concerns about the impacts of urban growth are not new, and movements such as “smart growth” and “new urbanism” have reached the mainstream (Knaap and Talen 2005). Smart growth originated from a community of policymakers and environmentalists, whereas new urbanism came from architects and other design/build professionals. Both movements attempt to control growth patterns to minimize urban impacts on the environment and to promote healthy, livable communities (Brown and Cropper 2001, Congress of New Urbanism 2001). However, many societal obstacles are present in terms of political, economic, and cultural barriers. For example, in Austria a lack of societal demand, complex legal obstacles and lack of political steering, and limited economic incentives for innovative practices prevented the implementation of energy-efficient remodeling of old buildings (Kastenhofer and Rammel 2005); in the Netherlands, a study proposes that environmental policies must match everyday concerns of Dutch citizens and in shaping such policies, the public must be involved (Martens and Spaargaren 2005); and American cultural values, ranging from individual freedom, property rights, and material consumption limits the ability to craft and implement sustainable policies (Bryner 2000). With regards to residential developments, even the best management and

design recommendations must be practical and understood by build/design professionals, planners, policymakers, and homeowners in order to have successful implementation (Youngentob and Hostetler 2005).

Realizing that much of the sustainability recommendations coming out of the University of Florida were not being implemented in the real world, a group of scientists within UF (e.g., energy, wildlife, water, and horticulture specialists) saw the need to form the Program for Resource Efficient Communities (PREC – <http://www.energy.ufl.edu/>) as a way to interface with the public, particularly design/build professionals and practicing planners and policymakers. This group of professionals is an important target audience because with one stroke of a pen, they decide how a community will grow and function for years to come. Typically, these practitioners have not been trained in current sustainable design and management practices and the academic community can provide such information. PREC’s mission is to integrate and apply UF’s educational and analytical assets to promote the adoption of best design, construction, and management practices in new residential community developments that measurably reduce energy and water consumption and environmental degradation. The Program’s focus extends from the individual home and lot level through site development to surrounding lands and ecological systems. Many of our activities include organizing workshops and offering continuing education courses that involve academics, government, businesses, and concerned citizens: the purpose of these gatherings is not only to convey information and promote networking, but we gather input from practitioners about the barriers they have to sustainable development and about which practices make economic, political, and cultural sense.

PREC History and Activities

Background

Residential construction is a primary driver of Florida’s economy. Over the last decade ~100,000 new single-family, detached homes have been built annually in Florida. A direct consequence of this growth is a steadily increasing demand for energy and water, as is the rapid transformation of Florida’s natural environment. Most of Florida’s larger new residential developments are master-planned communities that start with basic land use planning activities and end with homes being constructed on finished lots. In addition, they frequently involve the design and construction of major amenities, such as golf courses. These communities represent a major transformation of land use that could potentially benefit from the services of University of Florida faculty.

Expertise in environmental engineering, energy, water, wildlife, forestry, landscape architecture, and building construction are a few of the disciplines that intersect with the needs of developers trying to build more sustainable communities. The Program for Resource Efficient Communities was established in 2004 to identify and coordinate educational and analytical resources available at the University of Florida to support the design, construction and management of more resource efficient residential developments. A multi-disciplinary team focuses on best practices for application in residential community design and management.

Mission Statement

The mission of the PREC is to promote the adoption of best design and operation practices in new residential community developments that measurably reduce energy and water consumption and environmental degradation. Our focus extends from lot level through site development to surrounding lands and ecological systems. The Program supports implementation of resource efficient community development practices through:

- Direct training and consulting activities,
- Applied research projects/case studies,
- Academic courses and degree programs, and
- Partnering with “green” certification programs.

Innovation

PREC is truly innovative on several levels. First, the target audience is design/build professionals and policymakers; reaching these audiences has not been a tradition in extension, but developers and policymakers play a major role in creating healthy, resource-efficient communities. PREC has its roots in an Extension program called *Florida Energy Extension Service (FEES)* coordinated by Dr. Pierce Jones since 1995. FEES offered fee-based continuing education courses for building professionals and covered topics such as Construction Operations to Minimize Environmental Impact, Siting and Passive Design, Green Materials, Indoor Air Quality, and others. FEES has evolved into PREC to move beyond the building envelope and address issues involving site layout and community-wide planning. PREC has been actively partnering with policymakers and design/build professionals to create “model” resource-efficient communities.

Most of PREC’s activities are fee-based. Whether they are continuing education courses or consultation activities with developers, monies generated from such activities are funneled back into the program to fund graduate students, conduct research, and to further develop continuing education courses and other Extension activities. To highlight one significant activity that was very risky, PREC partnered with a local developer in Gainesville, Florida and purchased several lots. On these lots, PREC built “green” model homes as a way to showcase energy-efficient technology and environmental-friendly landscaping. PREC is now in the process of selling these homes for a profit, and the proceeds go back into PREC.

Building on the initial success of FEES, PREC continues to develop and deliver continuing education courses and associated certifications for professionals involved in the design, construction, and operation of residential community developments. For particular developments, Program specialists collaborate in project review and ongoing support of best management practices. Below, we highlight significant PREC activities:

1. The Program supports graduate students whose projects address critical resource efficiency issues; provide case studies related to impacts of specific practices; and develop training materials for use in professional continuing education courses. The Program also promotes student internships with developers, certification groups, government agencies and others that offer real world, interdisciplinary experience related to the Program’s mission. To date, we have had 12 graduate students that have resulted in new continuing education courses, evaluation of new resource efficient technologies, scientific papers, and development of Extension fact sheets.
2. Since 1996, 25 original continuing education courses have been developed and offered throughout the state (see course list - http://www.energy.ufl.edu/continuing_education.htm). The materials are organized into 1-hour and 2-hour topical modules generally intended for instructor-led presentations to small groups (fewer than 25 participants). Each module includes a) a participant guide, b) an associated facilitator’s guide, c) a PowerPoint presentation, and possibly d) supplemental presentation materials, such as videos. Individual modules are submitted to various boards for approval as continuing education units. The boards include: Construction Industry Licensing Board (CILB), Board of Architecture and Interior Design (ARID), Building Construction Administrators and Inspectors (BCAI), Electrical Contractors Licensing Board (ECLB) and Board of Landscape Architects (BOLA). Over 11,300 participants have taken the courses, generating revenue of over \$1,500,000.
3. Madera is an 88-home master-planned residential community development in Gainesville, Florida located on a fully wooded 44-acre site adjacent to the University of Florida campus. PREC has partnered with the developer to create an environmentally friendly, resource-efficient community. PREC specified minimum resource efficiency and certification standards for Madera homes for inclusion in the community’s Conditions, Covenants and Restrictions (CCRs). Also, PREC built a model home that not only met the minimum Madera CCR requirements, but also demonstrated even higher energy efficient standards. This partnership offered excellent opportunities for conducting applied research and creating high profile extension demonstration sites. It also offered a tremendous

opportunity to gain first-hand knowledge of the details of both the development and residential construction processes. Much of the knowledge gained from this endeavor has been incorporated into revision of continuing education courses.

4. PREC continues to forge relationships with county/city governments and developers to create resource efficient communities. Many of our activities involve consultations (in the form of workshops and summits) to implement design and management practices that conserve natural resources within the built environment. Examples include:
 - **Starkey Ranch (2005)** – PREC coordinated participation of University of Florida specialists in a site visit followed by a 2-day workshop aimed at integrating resource efficiency into a development plan for a 3,000-acre project in south Pasco County. This project is ongoing.
 - **Audubon International/University of Florida Summit (2005)** – PREC co-sponsored a summit on resource efficient land development at Disney targeting developers, planners and government agencies. As a result of the summit, a liaison relationship between PREC and an environmental consulting firm (Glattig Jackson) was formed. PREC personnel spend 4 days a month in GJ's Orlando offices working on targeted projects.
 - **Baldwin Park (2005)** – PREC coordinated participation of University of Florida specialists in a site visit, followed by a workshop aimed at managing the community's impact on Lake Baldwin in Winter Park.
 - **Town of Harmony** – Through consultations with PREC, the Town of Harmony has incorporated many design and management options to conserve natural resources. Highlights include: funding to develop and implement a long term educational program within the community that highlights local natural resource issues (see <http://www.wec.ufl.edu/extension/gc/Harmony/index.htm>); all of the homes are Energy Star certified; creation of Covenants, Codes, and Restrictions that address environmental and wildlife issues; use of a native plant landscaping palette; and the conservation and management of open space.
 - Coordinating the 2006 Green Trends Conference (<http://www.greentrends.org/>) that promotes economic and environmental benefits of building green.
 - Partnering with municipalities (e.g., Lake and St. Johns counties) to conduct workshops on sustainable development; the target audience for these workshops is planners, developers, and county/city commissioners and staff.
 - Review of county/city regulations, policies, and comprehensive development plans to help communities create and implement novel sustainable designs and management practices. Through the efforts of one graduate student, Marisa Romero, a report was developed on the success/failure of incentive-based policies regarding sustainable practices.
5. Creation of a *Living Green* TV series and web site that addresses sustainability issues (see <http://livinggreen.ifas.ufl.edu>). To date, we have the show airing in over 50 markets (millions of potential viewers), including PBS affiliates and local TV stations.

Lessons Learned

Quite frankly, tackling growth management issues at the level of policymakers/planners and developers has been difficult. Understanding the needs and wants of the design/build community and how development “truly” occurs in the state of Florida has been quite a learning process with many bumps along the road. Many pitfalls exist when trying to help municipalities and developers (even those that are willing!) to implement sustainable design and management practices within their communities. However, the payoff is huge if things go right. Below are lessons that we have learned:

- **Partner with a developer to implement sustainable practices:** Decisions at the top are important! It is really difficult (as a wildlife specialist) to go into a community that has already been designed by the developer in ways that are not conducive to improve wildlife habitat. For example, the covenants,

codes, and restrictions (CCRs) may regulate the amount of turf and what people can plant. Also, open space may have design limitations that are not conducive to wildlife (i.e., little natural habitat preserved). Thus, the framework for the community will set the stage for years to come, and it is critical to partner with a developer during the design process. However, caution should be exercised, because some developers will use wildlife experts to help them through permitting difficulties. For example, rezoning of a site may be contingent on mitigating the impacts on an endangered wildlife species. Now, this could be an opening with a developer to do some meaningful changes, but how does one ascertain how committed a developer is? A developer could adapt their design to get through the permitting process and then not follow through on what they said they would do. First, make sure there are repercussions in place if a developer does not implement (agreed-upon) design and management practices (e.g., a building permit is revoked). Second, look at the history of this developer and relations with local planning staff; you can learn a lot by how much other people trust him/her. Third, see if the developer is willing to upfront some money on designs and management practices that would benefit wildlife (before a building permit is issued). This will, at the very least, give you some resources to work with and a token of commitment shown by the developer. In the end, there is no formula to guarantee a meaningful relationship with a developer, but from our experiences, the more face-to-face time you have, the better able you are to establish a trusting relationship.

- **All individuals associated with the development must understand and have buy-in:** With the 3 phases of a development, design, construction, and post construction, each phase has individuals that make decisions that determine the success of any sustainable ideals. Typically, the design phase involves architects, landscape architects, civil engineers, and developers; the construction phase involves a host of contractors and sub-contractors, and the post-construction phase is dominated by homeowners and also realtors that sell the homes. If, for example, a goal of the development is to conserve wildlife habitat, then a good design needs to be implemented on paper; during the construction phase, contractors need to subscribe to specific practices that will minimize their impact on wildlife habitat and populations (e.g., proper placement of barriers around trees and around natural areas helps preserve native flora); and homeowners should be made aware of the sustainable designs in their homes, yards, and neighborhoods so that they can manage them appropriately, while realtors are informed about the designs and intent of the neighborhood and convey this to potential homebuyers. In particular, contractors and other built environment professionals should take continuing education classes that help them understand the design features and management practices lay the groundwork for a resource efficient community. All parties involved with the development should have meetings at the beginning of the project and at various interludes during build-out. Each should enroll in continuing education classes that address sustainability options during the 3 phases of a development. With homeowners, the developer should implement a robust education program; this should consist of educational signs, a web site, and a brochure that addresses environmental issues pertinent to that community (see <http://www.wec.ufl.edu/extension/gc/Harmony/index.htm>). Without a continuous, on-site education program, there is the potential for residents to resort to traditional, non-environmental behaviors (DeLorme et al. 2003, Youngentob and Hostetler 2005). A study in Gainesville, Florida found that residents of a “green” community had a scored lower on several questions about environmental knowledge, attitudes, and behavior than “standard” community types (Youngentob and Hostetler 2005). Thus, the green community probably does not function as a resource efficient community.
- **Are your recommendations prohibited by local policy?** In some cases, local ordinances and regulations may prohibit certain sustainable practices. For example, traditional curb, gutter, and retention ponds are enforceable measures to manage stormwater in Florida. In a development in Gainesville, we tried to promote swales, underground filtration tanks, and natural retention areas and met with a lot of opposition from the local regulatory agency. The best way to avoid these confrontations is to get to know the local regulatory agency and see how certain sustainable practices fit

in with local regulations. Most developers would not want to jump through extra hoops to get a project approved.

- **Have continuing education courses approved by trade organizations:** Many professional organizations require that their members take continuing education courses every so often to maintain their accreditation. We have had our PREC course approved for continuing ed. credit by the American Society of Landscape Architects and the Florida Home Building Association. This really helps enrollment for the classes.
- **Have a multi-disciplinary team:** One thing that we have found is that every development site is different. Sometimes there are major wildlife issues, sometimes water, and sometimes energy/transportation issues. A developer or municipality may come to the Extension service with one major concern, but this concern can lead to meaningful conversations about other natural resource conservation concerns. Plus, because all environmental concerns are connected in some way, a more holistic approach is the best way to create a resource-efficient community.
- **Partner with an environmental consulting firm:** Finding the right development company and design/build professional is an arduous task for a typical wildlife extension specialist. Where to begin? Forming a partnership with an environmental consulting firm is one way to “cherry pick” projects. Consulting firms know local developers and which projects have the best chance to become a sustainable community. This partnership works both ways: extension specialists have access to premier projects, and consultants have access to science-based information coming out of a University.
- **Organize a summit on sustainability:** Organizing a summit on sustainability and inviting design/build professionals, politicians, planners, developers, and landowners really got the ball rolling for PREC. We partnered with Audubon International to hold a Florida summit, and we are still networking with a variety of people across the state.
- **Help determine and create incentive-based policies:** In many cases, the development community better receives carrots. Novel policies often need some time to mature and offering voluntary incentives helps work out the kinks in new policies. Plus, regulations (i.e., sticks) are tougher to be accepted by the community, and voluntary incentives are easier to sell. Craft a new voluntary ordinance using stakeholder input and include some significant economic incentives, such as fast-tracking permits, permit fee reductions, and density bonuses. After substantial marketing and education of the new standards or building practices, a voluntary ordinance can evolve into a mandatory ordinance. Having it out there as a voluntary ordinance will give the opportunity for developers to try out the ordinance and help set up a culture of acceptance for these new design/build practices. Through the voluntary step, opportunities exist to work out kinks in the ordinance. Once a particular practice becomes mainstream, the next step is to make the practice mandatory. For mandatory ordinances, a baseline standard could be used for all developments to follow; however, include additional incentives where developers can go above and beyond the baseline standard. Additional incentive-based practices can become more accepted and eventually become mandatory. This iterative process may seem tedious, but trying out a new practice as a voluntary ordinance with economic incentives will help ensure initial buy-in and acceptance from the public. Overall, good marketing plans and education initiatives will help increase public awareness about the new ordinance and ensure compliance with the ordinance.
- **Have developers talk with developers:** Having positive recommendations about sustainable practices coming from a builder goes much further than an Extension specialist saying the same thing. Thus, having model communities available for tours is essential. A developer that has tried a certain practice and can show it to another developer is powerful. We have used the Town of Harmony (<http://www.harmonyfl.com>) and another community (Madera – in Gainesville, FL) to showcase particular practices.
- **Become familiar with certification programs:** Developers are looking for certification programs in order to market their communities as “green.” The certification does set the bar at some level, but each has strengths and weaknesses. Some have argued that these programs are too easy. Examples include

Audubon International (<http://www.auduboninternational.org>) and United States Green Building Coalition and its LEED standards (<http://www.usgbc.org/>). In some cases, collaborating with these certification groups can lead to modification of standards for certification. Such was the case when PREC became involved with the Florida Green Building Coalition (<http://floridagreenbuilding.org>). Further, a good collaboration can foster referrals to Extension to help out with a particular development project.

Getting Started

So how does one get started as a wildlife extension professional? First, form a cross-disciplinary team composed of various scientists from different disciplines. This is best done across the academic community but could include various agencies. The common function should be to serve as a portal into the University where municipalities and design/build professionals could obtain consultation on how to create resource efficient communities. Next, find a willing developer to partner with and explore sustainable options for that community. We (PREC) learned a lot about how development occurs in Florida by initially partnering with several developers, and this has helped improve our extension programs and activities. At some point, create a statewide summit; as mentioned previously, a summit that involves developers, landowners, planners, and politicians goes a long way to enhance communication and networking opportunities. Finally, develop and offer continuation courses that address conservation of natural resources during the design, construction, and post-management phases of a master-planned community. Have these courses approved by various trade organizations to help bolster participation in these classes. In the end, helping the design/build community understand that sustainable options are available is the first step in creating a different way to build communities.

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