

## Theme Reports: Summary of Oral and Poster Presentations

### *Maintaining Landscape Integrity: Wetland Emphasis*

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### **Maintaining Landscape Integrity: Wetland Emphasis**

Jerry Culen

The importance of this theme to Florida is evident by the twenty presentations (six oral and fourteen poster) that were selected for this conference. Perhaps this area, wetlands, has received more attention in the form of research projects, grant funding, protective legislation and regulation during the past decade than all other theme sessions combined. However, despite this attention, wetlands continue to be lost at an alarming rate. Is this a function of the lack of good science related to understanding wetlands and wetland ecosystems? No, but perhaps it is a function of education and communication and how information related to wetlands is conveyed to the public as well as to policy makers.

In his opening presentation as theme moderator, Ernie Barnett of the Department of Environmental Protection (DEP) emphasized his agency's role in the planning and management aspects of Florida's ecosystems. This presentation not only pointed out the how's of ecosystem management but also discussed the agencies goals of improved environmental education, development of an environmental ethic and the idea of shared responsibilities within the general population. The message of DEP's public land management maintains that healthy ecosystems will provide many benefits including a healthy economy. This message also indicates the need for flexibility when considering the linkages and the management of the human communities while emphasizing a need for better ecosystem protection.

The remaining oral presentations varied and included information on the floating wetland communities on Orange Lake (Clark and Sieving); wetlands assessment in the St. Johns watershed (Reed); the North American Waterfowl Management Plan in Florida (Rockwood); protecting water quality of Ichetucknee Springs (Stevenson); the effects of a wetland case study on student behavior (Culen); and organizing information for public participation and policy development (Carter). An additional fourteen poster presentations were accepted for this theme, again, with varied topics for presentation. The abstracts for the posters can be found on pp. 94-129 of the Program and Abstracts provided to all conference participants. When these presentations are divided between the three themes for presentations, science, education and policy, fourteen related directly to the science theme, five to education and one to policy. The following observations were made related to each of these theme areas.

The science presentations related to this wetland theme provide numerous examples of the work being done to understand and protect wetlands. Several projects involved the collection of baseline data (Gholz, Graves, Loftin, Royals, Scheick, Shih, Clark/Sieving, Reed, Rockwood and Smith) and others investigate the remediation of existing problems (Anderson, Brewer, Clark, and Kelley). In summary, these projects demonstrated varied approaches to the investigation and resolution of wetland problems, with excellent interagency cooperation and good private partnerships/linkages. For the most part, there was limited direct citizen/public involvement with these projects. Although, most noted impacts to humans and suggested potential educational efforts that might be initiated for information dissemination. The desired outcomes mentioned beyond the direct benefits of the scientific information included ecosystem protection/enhancement and policy influence.

The presentations that focused on educational programs (Culen, Monroe, Fisher, Hart, and Sheftall) were directed at a variety of age groups, middle school to adults. The goals of these programs were aimed at connecting the science through a hands-on approach to the problem or issue (i.e., Lake Watch was

directed at monitoring water quality). Most of the educational programs suggested techniques in which individuals could become actively involved in solutions to problems or to be able to communicate corrective actions to others as in the case of the "Master Wildlife Conservationist Program". Limited information and training was presented that related to how individual citizens might influence policy or policy decisions at higher levels. Although most programs had some evaluation tool to measure immediate outcomes and success, limited effort to determine the long-term impact of these programs was evident.

The single presentation directed at public participation and policy development (Carter) presented a methodology to organize critical information that was scientifically accurate but yet communicable to the public. The presentation suggested that there is poor communication between the scientific community, agencies, citizenry and the policy makers and that most scientific information put forth is not understandable to lay people. The presentation suggested that by generating information that is more useful to consumers, a more effective give and take during policy negotiations might occur.

In conclusion, the scientific community continues to explore and research the questions related to wetlands ecosystems. This information is critical to understanding how these systems function, how they might be managed and better protected. The task is to make the information accessible and to successfully communicate this information to the lay citizenry. The challenge for educators in collaboration with the scientific community is to find new ways to communicate outside the box, using the science to guide the educational process. Additional methods for engaging the citizenry in the decision making process are also needed. Perhaps we are losing ground on the environment because we fail to educate and subsequently engage the public in the area of decision making relative to environmental problems. We should keep in perspective that we are all responsible for helping to maintain environmental and ecosystem integrity. We are all crew on the spaceship earth.

## *Restoring Landscape Integrity: Wetland Emphasis*

### Theme Report: Summary of Oral and Poster Presentations

#### **Restoring Landscape Integrity: Wetland Emphasis**

K. Ramesh Reddy

At the landscape level, wetlands form a critical interface between uplands and adjacent water bodies, as all of these ecosystems are hydrologically linked. The integrity of a wetland is influenced by the management practices implemented in the adjacent uplands. The key issues discussed at this symposium are: 1) the efforts made in restoring wetland functions in different ecosystems, and 2) the tools, resources and linkages that have been developed and are being used as part of restoration programs. Although we learned much about the efforts made in specific projects, two critical issues that did not come out of these presentation are: what criteria is being used to determine the success or failure of restoration programs? Secondly, and of particular concern to tax payers, how long will it take for a restored wetland to reach its original condition or function at new equilibrium? The time factor is critical, because it dictates the cost of restoration programs.

#### **Restoration Projects:**

One theme that stood out in all presentations is the efforts currently being made to develop strong linkages and interagency cooperation. However, it was not clear to what extent the cooperation has actually resulted in technical exchange among these agencies. Are the linkages mainly about funding or are individuals also getting involved in special programs that facilitate the exchange of ideas between scientists of different agencies? Funding was the major constraint in all projects.

Dr. Ed Lowe of the St. Johns River Water Management District, was the scheduled keynote speaker, who could not attend the symposium because of last minute conflicts. However, his associate Dr. L. Keenan presented the paper. His presentation dealt with general principles for large-scale wetland restoration.

Raymond Kurz presented the first paper, on the topic of "Wetlands and Aquatic Systems in Southwest Florida." This paper dealt with several restoration programs currently conducted by the Southwest Florida Water Management District. Linkages discussed in this paper include exchange of information with state and federal agencies. Craig LeSchack, Florida Game and Fresh Water Fish Commission, discussed the opportunities for cooperative wetland restoration and enhancement on public lands. Phillip Darby, University of Florida, presented ecological studies of apple snails and their role as food web component in wetlands. The South Florida Water Management District, Florida Game and Fresh Water Fish Commission, USGS-Biological Research Division provided funding for this project. "Saddle Creek Restoration and Alternative Mitigation Project" was also presented by two scientists in cooperation with multiple agencies, including US Army Corps of Engineers, Florida Department of Environmental Protection, Florida Game and Fresh Water Fish Commission, and the Southwest Florida Water Management District.

There were a couple of projects on Everglades Restoration Programs, one on Holey Land Wildlife Management Area presented by Blake Sasse, Florida Game and Fresh Water Fish Commission, and the other on "Tree island restoration in the Everglades Wildlife Management Area," presented by M. Anderson, Florida Game and Freshwater Fish Commission. J. W. Milon, University of Florida, presented a paper on how the social sciences are used in the decision-making process. The title of his paper was "Decision Analysis as a Tool for Ecosystem Restoration Planning." The UF Students Wetlands Club, which was funded by several UF colleges and the St. Johns River Water Management District displayed a strong educationally oriented poster presentation.

**General Observations:**

- For many ecosystems, the restoration objectives have been accomplished and some are in progress at this time.
- Interdisciplinary linkages aided in the success of the restoration projects. One clear message in all presentation was that we still need more interagency dialogue.
- Funding is a major constraint.
- There is a need for more interactions between natural scientists and social scientists so we can transfer scientific information into policy.
- The final important point is that restoration endpoints must be clearly defined; and also we need to develop more outreach and educational activities. These strong educational programs are key to making the public more aware and in gaining their support.

I have made a few notes summarizing what has been said at the symposium both in keynote lectures and in the presentations. We still need strong linkages not just between agencies, but also within our own disciplines. For example, on the UF campus we do not have strong linkages among different departments. We must develop these linkages at our own sites before we develop them with other agencies. At this time we do not have any standards set up to compare between projects or to determine whether restoration efforts are successful or failures. To address this, we need develop tools on how to use the data effectively, not just do more data collection. In order to be cost effective in making the best use of limited resources, we need modeling efforts and tools such as those mentioned by Dr. Costanza to transfer information from one restoration project to another.

Fundamental scientific foundations are critical for any effective restoration program. Think of medical science for an example. Without strong basic science inputs, we could not have developed the cure for many diseases. Impacted wetlands are like sick patients. To restore the impacted wetlands we need the foundation of basic science. We cannot restore wetlands by trial and error. If we do, we will not be successful in restoring wetlands. Unless we thoroughly develop these scientific foundations, we will not have success. This does not mean we need to stop the restoration programs today. We need to follow through with these programs, but at the same time, we must continually develop the necessary scientific foundation so that we can improve our understanding of the system, develop new techniques, and optimize restoration programs.

*Maintaining Landscape Integrity: Upland Emphasis*

Theme Report: Summary of Oral and Poster Presentations

**Theme Report on Maintaining Landscape Integrity, Upland Emphasis**

Vic Heller

My charge over the last day and a half has been to follow the presentations and posters in the area of “Maintaining Landscape Integrity,” especially those with an upland emphasis.

Mr. Bob Bendick of the Nature Conservancy provided a great introduction and framing of this issue by pointing out that protecting uplands is especially difficult because:

- (1) Much of it is privately owned;
- (2) Fewer development restrictions apply;
- (3) They require active management, such as prescribed burning and exotic plant control, in order to keep in their natural state; and
- (4) They are where the majority of Floridians want to build their homes

In addition, many of Florida’s outdoor recreational pursuits and major economic interests, such as agriculture and silviculture and other industries all require uplands, making conflict resolution and planning all the more complex.

We heard that a comprehensive approach to maintaining landscape integrity included a well-coordinated and systematic approach to land acquisition—including the traditional fee simple approaches—as well as the recent and more innovative approaches of less-than-fee and conservation easements and leases.

Several presenters and posters stressed the importance of a systematic approach to priority setting and decision making in the landscape protection process. Management agencies need to know what areas most deserve protection and where to spend their money. This must be accomplished by identifying the most important biological, social, and cultural priorities and clearly understanding the needs and desires of the public, and then bring the best and most up-to-date information to the planning table.

Doria Gordon, in her presentation “Developing Priorities for Conservation Research in Florida” stressed that available conservation information must reach the ears and hands of managers and decision makers. She cited the lack of integration between researchers and managers, and pointed out that many of us - even in the conservation community - do not speak the same language. She further suggested that the best way to ensure information integration from researchers to managers and decision makers was to institutionalize the process.

Two other presentations yesterday contributed to the theme of systematic approaches to landscape protection. Tom Hctor and Peggy Carr talked about using a GIS-approach to identifying hubs and linking corridors of ecological, recreational, and cultural importance to the landscape.

Linda Duever talked about the utility of Charettes and using ecological, economic, and recreational experts to generate regional maps to facilitate large-scale green infrastructure planning in the Southeast.

Linda, Tom, and Peggy all stressed the importance of having all stakeholders and disciplines involved in these processes in order to achieve a high level of program success.

Another important component of protecting upland landscape integrity is addressing lands held in private ownership. Chuck McKelvy enlightened us about the contributions of the Forest Stewardship Program and the program’s goal of encouraging non-industrial forest landowners to manage in an ethical and productive manner. The program employs a multidisciplinary approach of agency representatives to develop long-term conservation plans for private landowners, and provides financial assistance to help

defray the costs of conservation practices. To date, over 917 properties, comprising over 300,000 acres are enrolled in the program.

I should point out that many of the poster presentations also emphasized the need to establish incentive-based conservation programs on private lands in order to protect landscape integrity.

Another exciting area we heard about yesterday was Ecotourism. There was one presentation and several posters regarding this subject. The topic is exciting, because ecotourism is rapidly becoming one of Florida's most popular pursuits. It promises to stimulate local economies, as well as generate funding and constituent support for habitat protection programs.

Julie Pennington spoke about the four principal components of ecotourism (recreation, education, conservation, and income production) and explained that the linkages among these components are critical to successful ecotourism programs.

She stressed the importance of dedicating a portion of ecotourism revenues to the protection of the resources, and emphasized the need to monitor use levels and the quality of the tour experience in order to ensure the sustainability of this conservation/business partnership.

In the midst of promising program presentations, we heard about a program where the linkages have not been made and where some innovative policy changes are sorely needed.

Steve Humphrey reported that the Endangered Species Act is performing very poorly in protecting listed species on private lands. As a positive alternative to the current penalty-driven system, Steve proposes an endangered species habitat protection credits program that makes endangered species habitat a valuable commodity, rather than a liability, and creates economic incentives for landowners to protect endangered species.

This important theme of balancing penalties-based vs. incentive-based conservation programs was also central to several excellent poster presentations.

Upon reflection of all the presentations and posters pertaining to maintaining upland landscape integrity, several common threads of success became apparent to me:

First, is having a systematic, scientifically-based approach to conservation that employs the best technology and conveys the best and most up-to-date information from researchers to managers and decision makers.

Second, involve all stakeholders in the development of the program. This includes Federal, regional, state and local governments, private landowners, user groups, conservation organizations, and perhaps especially private business. Do not underestimate the power of capitalism to propel a conservation program.

Third, incentive-based conservation programs will likely be more effective than penalty-based systems, especially where private landowner participation is necessary.

Fourth and finally, do not preach to the choir about your programs. Learn to communicate with every group your program affects and touches. Learn to speak their language, learn how to increase program effectiveness through your program supporters and understanding from program opponents.

It has been a challenging and productive two days, and I, for one, would like to extend my appreciation to the other Steering Committee members for making this forum an innovative and entertaining learning experience. Thank you.

## *Restoring Landscape Integrity: Upland Emphasis*

### Theme Report: Summary of Oral and Poster Presentations

#### **Restoring Landscape Integrity: Upland Emphasis**

H. Franklin Percival

[\(Video Available, Click Here\)](#)

The word *perspective* is one that kept recurring as I thought of how to report on this aspect of the conference. Reference to perspective and scale necessarily will continue to appear within this review. Restoration of ecosystems is much more complex than initial alterations to the ecosystems. The task at hand requires a plethora of skills and perspectives on a wide range of scales. The conference was designed to encompass 3 topics within each of the sessions: policy, education, and science. Science was predictably the most prevalent topic within the theme session of restoring landscape integrity of uplands. Perhaps policy makers and educators are less willing to make presentations than researchers, but they should be encouraged to do so at the next conference. The presentations varied dramatically in topic, ecosystem, and detail. The common characteristic appeared to be passion; the presenters were very enthusiastic about their work.

The poster presentations were a particular treat. Poster sessions are generally the stepchild of conferences, but the guided sessions were especially informative within a small time frame. The presenters were doubly challenged in having to distill their information in some graphically pleasing manner and then present their story in 2 minutes. Both are skills and the posters and presentations were very well done. Both of the guides for the 2 upland emphasis sessions were especially informed about each of the posters and one guide even had to provide quite excellent impromptu talks for 2 absent presenters. The topics ranged from technological advances to biological investigations. The range of situations presented were from severely disrupted phosphate lands to cut over forest lands to an island for which there is no ecological history. Although I heard some complaints about the small confines during the crowded, noisy sessions, it seemed to me to add an element of excitement and interest.

Dean Gjerstad set the stage for the oral presentations with an overview of longleaf pine restoration efforts. This habitat type has decreased in the modern era from 90 million to 3 million acres and presents particular biological and fiscal challenges in restoration. Although the presentations covered widely varying, specific topics, the principal message to me is that ecosystem restoration is complicated and requires much cooperation among scientists, managers, landowners and agencies. The presenters were excited and well prepared and the audience was quite interactive. Technical problems presented by the slide projector were overcome by volunteers from the audience. People really do want to cooperate and this session highlighted that fact in many ways.

This conference was designed to overlap perspectives of participants. We generally do not mix disciplines, thus limiting our collective perspective on restoration issues. The challenge before us is a much reduced and maligned natural environment and linkages must be made to create the synergy required to solve complex land management problems. As a wildlife biologist, I have long felt that our own problem was that our vocation also is our avocation, religion and principal source of social contact. It is important...crucially essential...that we engage ourselves with soil scientists, mechanical engineers, etc. Florida has an abundance of challenges but also an abundance of raw material in the human resources to meet those challenges. The management of the human dimension of scientific interaction is a specialty area in itself. Thus, the ultimate challenge is ourselves and this meeting is one of the answers.

***Maintaining and Restoring Landscape Integrity: Invasive and Exotic Species Emphasis*****Theme Report: Summary of Oral and Poster Presentations****Maintaining and Restoring Landscape Integrity: Invasive and Exotic Species**

Ken Langeland

Papers and posters presented in the Invasive and Exotic Species section substantiated the need for greater attention to this significant threat to conservation lands. Examples that document the scope of this problem ranged from insect to plant species and included all habitats, from aquatic to xeric. Discussed in the section were the discovery and attempts at eradication of the African tortoise tick (*Amblyomma marmoreum*), which if escaped has the potential to devastate Florida's white tail deer population (along with other wildlife), the weevil, *Metamasius callizona*, which is devastating populations of native bromeliads, and the widespread impacts on native species and habitats caused by invasive plant species.

The theme speaker for the session, FAU's Daniel F. Austin, discussed the serious threat invasive plant species pose to Florida's natural ecosystems and development of the Exotic Pest Plant Council's (EPPC) list of invasive plant species found in Florida's natural areas. This list contains 62 species that have demonstrated the ability to disrupt native plant communities (Category I) and 59 that have the potential to disrupt native habitats (Category II). The list is dynamic, responsive to changes in species distributions and to new information, and is therefore updated biannually. Many species on the EPPC list are currently managed by conservation land managers using public funds.

Information presented on Old World climbing fern described the serious ecological impacts that a single invasive plant species can cause. This plant, first noted in Florida in the 1950s, is spreading rapidly throughout the southern portion of the state. It smothers trees by climbing into their canopies, alters fire ecology, and excludes native understory plants by forming a dense mat of rachis material. It may also alter drainage and water movement.

The need to develop criteria for predicting invasiveness, which can be used for prioritizing management efforts and screening potential new introductions, and current research toward this end were emphasized during the session. A common thread among papers in the session was that political issues are sometimes a deterrent to progress. Both screening protocols for future introductions and public education programs related to current invasive non-native plant problems on conservation lands are of political/economic interest to the nursery and landscape industry. A multi-disciplinary approach may be the most effective for addressing the interests of all groups.

The importance of herbicide and biological control research to support management programs was emphasized, and linkages between these disciplines are important. While it was suggested during the general discussion period, by one panel member, that control programs against invasive plant species are futile, success of managing certain invasive species on conservation lands is presently very encouraging. For example, the South Florida Water Management District has completely cleared melaleuca from conservation areas south of Alligator Alley and the marsh area inside the Lake Okeechobee levee is projected to be completely cleared within five years. Successful invasive plant management programs such as these demonstrate what can be done when a commitment is made to develop effective techniques and allocate sufficient funds for control. Faculty with program responsibilities in invasive plant management feel that increased IFAS involvement in extension and research in this area would lead to future successes.

*Maintaining and Restoring Landscape Integrity: Coastal and Marine Emphasis*

Theme Report: Summary of Oral and Poster Presentations

**Coastal and Ocean Session Notes**

William Seaman

[\(Video Available, Click Here\)](#)

The need for increased attention to marine subjects in research and outreach efforts by forum attendees is indicated by the relatively low number of papers and posters compared to other subject areas. Yet 80% of Florida's population lives in coastal communities, so there is a need for attention to this region.

The papers at the forum covered a wide range of subjects, including beach and dune stabilization, sea turtle ecology, and productivity of reef habitats. There are strong linkages among investigators and organizations in the ocean and coastal studies field.

A strong consensus among conferencees supports the assertion of our keynote speaker that "the sea is invisible" to much of society. In other words, compared to resources of the land, which are visible constantly from our homes and businesses, the resources of the estuary and sea are poorly recognized. For example, while maps and even satellite images may show great detail of the landforms and urban systems, the same maps typically depict the sea as a gray or blue surface. Even city or county planning maps may not indicate submerged resources (e.g., seagrass beds) the way agricultural areas are depicted. Accordingly, the resources of coast and ocean need greater visibility in academic and governmental agency research and training programs.

Finally, the linkages between upland systems and downstream coastal environments need to be presented more clearly to professional and lay interests in Florida.