Eastern Invasives Management Network
Kissimmee Valley Landscape Conservation Area

Key Ecological Factors

Pine flatwoods mosaic (including isolated wetlands)

Fire, hydrology and climate are the most prominent ecological factors influencing vegetation type. Fire strongly influences this community's structure and vegetative composition and historically has been the most important factor in flatwoods maintenance. A wide variability in the presence of water, created by seasonal precipitation, low and flat topography, and sandy soils, is another characteristic feature of the flatwoods communities that influences their structure and composition. The hardpan reduces the percolation of water below and above its surface. During the rainy season, water frequently inundates much of the flatwoods, while during the dry season, ground water is unavailable to many plants whose roots don't penetrate the hardpan. Thus, many plants are under the stress of saturation during the wet season and under the stress of dehydration during the dry season.

- Mesic flatwoods – A fire return interval of approximately 3-5 years appears to be natural for this community. However, fires that are too frequent or too hot would eliminate pine recruitment and eventually transform the mesic flatwoods to dry prairie.
- Scrubby flatwoods – A fire return interval of approximately 8?-25? Years appear to be natural for this community.
- Wet flatwoods – The natural fire occurrence appears to be every 3 to 10 years. Nearly all plants and animals inhabiting this community are adapted to periodic fires, and several species depend on fires for their continued existence.
- Dry prairie – The natural fire frequency appears to be every 1 to 4 years, which averages slightly more frequent than generally occurs in mesic flatwoods. The higher frequency of fire is probably the primary factor that limits pine recruitment.
- Wet prairie – The most important physical factors are hydrology and fire. Wet prairie is seasonally inundated or saturated for 50 to 100 days each year and burns every 2 to 4 years.
- Depression Marsh – Hydroperiods range widely from as few as 50 days or less to more than 200 days per year. Fire is important to maintaining this community type by restricting invasion of shrubs and trees and the formation of peat. Fire occurs frequently (3-7 years) around the periphery of the marsh and occasionally (8-25 years) toward the center. A severe peat fire will lower the ground surface and create a pond at the center of the marsh.
- Basin Swamp – Typical hydroperiod is 200 to 300 days. Fire intervals may be anywhere from 3-5 years on the outer edge to 100-150 years towards the center.

Lacustrine marshes

Key ecological processes and gradients which influence the lacustrine wetland community include hydrologic regime (both inflows and inundation), fire regime, nutrient inputs (especially phosphorus), muck accumulation, and vegetative structure. Many of the headwaters lakes and lacustrine wetlands have been altered as a result of regulation and large-scale flood control in the greater Kissimmee-Okeechobee watershed. Annual water level fluctuations have been reduced by 50% or more as a result of lake regulation, and many lacustrine wetlands were drained in the

1950's when outlets were channelized and widened. Fire regimes have also been altered as a result of encroaching development and landscape fragmentation, and nutrient inputs have increased dramatically from increased runoff of pollutants from agricultural and urban areas. As a result of these changes, the total acreage of littoral wetlands has decreased as much as 80% and the quality and composition of remaining wetlands has declined.

Blackwater streams and riverine wetlands
Key ecological factors include:

- Slow steady flow
- Healthy associated floodplains
- Seasonally fluctuating water levels
- Clean water

Threats to these targets include:

- Channelization and managed water levels for flood control
- Drainage of associated particularly headwater wetlands by ditches/canals
- Conversion of associated wetlands primarily to pasture
- Nutrient input especially phosphorus

<u>Threat Abatement Priorities</u>

Pine flatwoods mosaic

- *Lygodium mircophyllum*/Old World climbing fern
- *Lygodium japonicum*/Japanese climbing fern
- *Imperata cylindrica*/cogon grass
- *Rhodomyrtus tomentosa*/downy rose myrtle

(All the above can alter natural fire regimes.)

Lacustrine marshes, blackwater streams and riverine wetlands (hydric systems)

- *Scleria lacustris*/giant scleria
- *Lygodium mircophyllum*/Old World climbing fern (alters fire regimes)
- *Lygodium japonicum*/Japanese climbing fern (alters fire regimes)
- *Sapium sebiferum*/Chinese tallow (alters soil/nutrient conditions)
  Melaleuca quinquenervia/Melaleuca (predominately in South Valley)
- *Schinus terebinthifolius*/Brazilian pepper (allelopathic)
- *Ludwigia peruviana*/primrose willow (>organics/alters water chemistry)
- *Panicum repens*/torpedo grass
- *Hymenachne amplexicaulis*/West Indian marsh grass
- *Imperata cylindrica*/cogon grass (alters fire regimes)
- *Solanum viarum*/tropical soda apple
- *Psidium cattleianum/*strawberry guava (possibly allelopathic)
- *Psidium guajava/*common guava (possibly allelopathic)

Several open water species associated with the previous lake target were dropped. It was felt that this was not a defensible/viable target. West Indian marsh grass was added based on new stakeholder information and *Scirpus cubensis*/burhead sedge was dropped based on new observations that confirm that it behaves as a pioneer species and drops out over time.

Hydric systems remain the highest priority. *Scleria lacustris* has been given priority over *Lygodium* spp. It is a new species (last 3 years) on the landscape within the Valley and has shown tremendous invasion potential to lacustrine marshes. Research and control efforts should be targeted to this species while it is still low end of the exponential growth curve of invasion.

Threat Abatement Strategies

Strategy (in place):
Several ranches in the KVLCA have agreed to participate in a new program The Nature Conservancy's Florida Lands and Outstanding Waters (FLOW) project, these ranch owners will restore wetlands and commit to long-term land management of their lands, while retaining private ownership and continuing to use designed to improve wetlands and native habitats on private ranchlands. Through their lands for low-intensity agriculture.

The FLOW program consists of three parts:

1. purchase of a conservation and flowage easement over the targeted wetland and adjacent buffer lands,
2. hydrologic restoration of the wetlands within the easement according to a mutually agreed restoration plan, and
3. development of a management program and agreement which would maximize the ecological benefits of the restoration and compensate the landowner for management activities.

The following language has been embedded within the above mentioned easements.

Exotic and nuisance plant and animal control: Early detection of exotic and invasive plant populations allows for the development of a control program that is more cost efficient, requires less resources and delivers fewer environmental impacts to the surrounding area. Exotic and invasive plant management should begin during restoration rather than waiting until the maintenance phase.

Activities conducted by any of the parties named within the management agreement and especially those associated with restoration work should be planned and implemented with preventing the spread of exotic and invasive plant species as a top priority.

- ✓ The landowner will allow grantee staff or assigns to perform exotic and invasive plant field surveys. Data from initial surveys will be compared against subsequent monitoring to determine if control measures are effective.
- ✓ Exotic and invasive plants that are deemed detrimental to the ecological integrity of the system by the grantee staff will be treated by the landowner. The grantee staff will determine the method, timing and frequency of treatments. The landowner will conduct monthly reconnaissance surveys of the easement for new exotic plant occurrences. Monthly reports noting new invasion, status of invasions being treated

and treatment activities will be required of the landowner. Those reports will be submitted in the biannual report.

- ✓ The grantee or its assigns will treat large infestations encountered during the initial surveys. Subsequent maintenance treatments will be completed by the landowner.

  A vision of success would feature large tracts of private ranches, especially private lands serving as buffer areas around targeted natural areas, under such agreements.

Strategy (planned):
The formation of a self-perpetuating group forum "KV Invasive Plant Alliance" which will serve the following functions:

- ✓ Forum to work together/coordinate activities
- ✓ Provide regular communication
- ✓ Provide technical information
- ✓ Identify and meet training needs
- ✓ Assist with funding needs
- ✓ Raise public awareness
- ✓ Promote community action
- ✓ Work on policy reform

A vision of success would feature a committed group that meets periodically to discuss all of the above and works out of committees to accomplish the above. It would be well recognized and networked with the invasive plant community outside of the KVLCA. It would promote refinement and use of existing data exchange tools, such as the FL Exotic Pest Plant Council's website and DEP's invasive database, and actively participate in the development of new ones as needed. It would be made up of all levels of government agencies, private entities and have good representation of private landowners both rural and urban.

Strategy (planned):
The development of a short educational video targeted to private landowners.

A vision of success is a video that is both an awareness and training tool. It would be simple enough to be understandable to a wide range of audiences but targeted primarily to the agricultural community. It would feature speakers from the extension service that the audience would relate to and trust. An overall message would be conveyed regarding the financial cost associated with invasive control and how it impacts this particular audience in addition to natural areas. Only a few high priority species would be addressed in depth with clear guidance to additional resources. Distribution of the video would be through the local Extension Agents and stakeholders who have direct relationships with the targeted audience.

Strategy (planned):
Facilitate the development of a regional monitoring system that incorporates GIS and updates databases and map coverages to chart invasions in a timely manner.

Vision of Success: A system based more on "Center of Disease Control" type technology thatis successful in dealing with introductions typified by the exponential growth curve. Landowners and managers would be made aware of new invasions in a short period of time allowing them to be successful in eradication/control efforts. This monitoring system would involve a web site – either a link through FLEPPC or DEP (perhaps, either agency would go statewide with concept).

Strategy (planned):
Train stakeholder volunteers/docents to become a Speaker's Bureau on the topic of invasives.

Vision of success: Well spoken, trained and enthusiastic volunteers from various stakeholder groups, such as TNC and Kissimmee State Park would make their selves available to present standardized programs to target groups such as homeowners, clubs, etc. They would be competent to answer questions and guide individuals to additional resources as needed. They would also be available to host a traveling exhibit to local and regional special events and meetings.

Strategy (planned):
Train stakeholder volunteers to survey, map and control targeted species on both public and private lands.

Vision of success: Knowledgeable and physically capable of surveying targeted areas for priority species. Regionally based teams with team leaders who routinely survey, map and conduct control efforts in a standardized way. Information gathered is centrally compiled and tracked by a lead organization or a committee of the Alliance.

All of the above strategies work toward raising awareness among differing audiences and facilitating action. Each one also would be suitable to address new threat species, populations, etc. through a standardized reporting mechanism. Each should encompass a sense of urgency that is adequately relayed to target audiences.