



Corkscrew
Swamp Sanctuary

Along the Boardwalk

May, 2008

www.corkscrew.audubon.org

Bird-a-thon record

Ed's annual one-day Collier County bird-a-thon to raise money for Corkscrew set a new record with 115 recorded species this year. Please contact Lori to contribute.

Immokalee High, 4H get down & dirty for Corkscrew

Corkscrew continues to encourage students to engage in direct conservation projects both at the Sanctuary and in their own neighborhoods. This year two projects at Corkscrew were completed with the help of student environmental activists.

The returning Immokalee High School LIFE team, led by Golden Apple winner Kelly Stevenson, was instrumental in renovating the butterfly garden by the Living Machine.

Stevenson's students had helped maintain the garden several years ago, and Stevenson and her students agreed with Harry Bailey, the Blair Center caretaker, that it was time to make some serious changes.

Over the course of a week, with Bailey's guidance, students did a full overhaul on the butterfly garden, removing old weeds and vegetation, lining the ground with weed block, planting butterfly attractors, and finishing up with a layer of pine straw.



In April, a 4-H group interested in learning about native non-invasive plants and native wildlife habitats chose to get its hands dirty. This crew is a team of the **Roots and Shoots** student action program developed and managed by the Jane Goodall Institute. Students, led by Corkscrew intern Dawn Beyer, began a new native songbird habitat around the Blair Center.

After a morning of hard work, Beyer led the group up Fish Farm Road to view a newly burned area. Students and parents learned how conservation lands are managed and discovered how fire can help keep native habitats healthy.

Once the native plantings are established, the songbird habitat and butterfly garden will not only bring birds and butterflies closer to visitors but will serve as a teaching tool for visitors to learn how they can transform their own yards into a natural haven for wildlife.

Quick ID Guide: Seasonal plants in the Lettuce Lakes

In addition to regular aquatic plants and new grasses, three large plants thrive in the drying lakes.

A problem plant is the exotic Primrose Willow (*Ludwigia peruviana*), left. Its roots hold tussocks together, creating permanent islands. It is most noticeable in the north lake and is recognizable by its bushy appearance, pale green leaves, and large yellow blooms.

The other two are dry season native perennials that will slowly die back



when water returns to the lakes. Blooms of both are attractors for butterflies and bees, and caterpillars feast on the leaves, leaving large holes.

Swamp Smartweed (*Polygonum hydropiperoides*), center, is a low-growing plant from 1–3 feet high with medium green shiny leaves and minute pinkish-white flowers.

Pigweed, right, also called Southern Amaranth (*Amaranthus australis*), is a tall plant from 3–9 feet high but occasionally much taller. Its single trunk is reddish at the base. It will branch out and has small yellowish flowers and eventually seeds that are reddish brown to dark brown.

Bird Trivia

What raptor found in Collier County is also called a "duck hawk"?

Discover the answer at www.collieraudubon.org/birding.html

In Case a Visitor Asks

What are tussocks, where do they come from, and what do they do?

Tussocks in the lakes are clumps of peat that have broken loose from the bottom and risen to the top.

When the lakes dry down enough that the peat on the bottom begins to dry, air pockets form. If the summer rains come quickly enough, some of the air pockets are trapped and cause clumps of the peat to separate and float to the surface.

As the lakes dry down the following season, tussocks settle to the bottom, giving the surface its lumpy appearance and trapping more air beneath.

Seeds from plants germinate and begin to grow. Their root systems hold the tussock together as a solid mass.



When the lake bottom is dry, other plants besides Pickerelweed and Alligator Flag begin to grow. Most, like Smartweed and Pigweed, are seasonal and disappear when the water returns.

However, some plants become so established that when the water does return, they and their tussocks become small islands and remain.

The prime example is Pond Apple. At one time, the two lakes were one large, continuous lake. Tussocks that floated to the top at the north lake drifted southward where they were stopped by the boardwalk pilings. Pond Apples took root and established a land barrier between the lakes. Primrose Willow is beginning to do the same at the south end of the north lake.

Those long-handled trident-like tools on the bypass trail by Box 5 are used to break up tussocks so they sink.

April Sightings



A Swallow-tailed Kite perches on a bare limb at the north lake (April 18).



A Gray Squirrel and Hispid Cotton Rat share seed below the Bunting House feeder (April 8).



A Downy Woodpecker awaits its mate from its hole along the Plume Hunter Spur (April 22).

How Does That Work?

Treefrog's foot uses dual method to stick to wet, slippery things as well as dry surfaces

Tree frogs' feet aren't nearly as powerful as those of the well-studied gecko, but their traction is good enough that they can grip the underside of a wet, slick leaf. Now, researchers have evidence that the tree frog's foot may be surprisingly sophisticated.

Unlike a gecko's toe, which uses dry, sticky hairs to clutch a surface, the pads on the bottom of a tree frog's toe are coated with a mucus film, enabling the pads to cling to a surface by wet adhesion, like the force that makes a damp piece of paper stick to a window.

But it turns out that wet adhesion is only part of the picture. Researchers have found that microscopic bumps on

the toe pad jut through the film and make direct, dry contact with a surface. This arrangement enables the tree frog to toggle between wet adhesion, which is useful on rough surfaces, and dry friction, which gives the frog a grip on smooth terrain.

Each toe pad consists of hexagonal skin cells that are covered in cleatlike bumps. Mucus-filled channels separate the cells. By studying images of frogs walking on glass, researchers determined the thickness of the pad's mucus film. In many areas, there appeared to be no film at all. The tops of all these bumps actually touch the surface.

In another test, the researchers discovered that the mucus has a watery consistency, causing it to flow away quickly so that a pad can directly contact a surface.

The mucus channels not only provide the mucus film but also serve an important role in frog traction. On wet surfaces, they funnel away excess fluid. On dry or uneven surfaces, or when a frog hangs upside down, the mucus creates surface tension and viscosity, or extra clinginess. The channels also allow the hexagonal cells to conform to contoured terrain, like that of a leaf.

from Science News, by Eric Jaffe

Prescribed Burns



February 8: burn by Blair Center conducted; ground bare



March 13: grasses and first fronds of palmettos begin to emerge



March 28: ferns, grasses, ground cover growing; palmettos begin to flower



April 21: small cabbage palm in center sending out new fronds; wildflowers emerge



July 25: palms leafed out, grasses and wildflowers blooming

For thousands of years, fire has played an important role in shaping the landscape of South Florida. Historically, natural fires usually occurred during the summer wet season, started by lightning from thunderstorms. Because the ground was wet, the intensity and severity of the fires were limited.

This natural cycle changed as man altered the landscape of South Florida. Large areas were drained for human use and natural fire patterns were disrupted. Now, controlled or prescribed burns are used to try and duplicate the beneficial effects of natural limited fires.

Prescribed burns are one of the land management tools used at Corkscrew. These burns are a very cost effective way of managing the land, and the reasons behind the frequency and time of year depend on the desired impacts on the ecosystems to be burned.

TIMING AND LOCATION

Marsh and savannah areas burn every one to three years. This is beneficial for numerous grasses and wildflowers because fire can enhance seed germination.

On the other hand, pine flatwoods, high pine, and shrub wetlands often burn in intervals of three to seven years.

The season of the burn also impacts the vegetation. Pine trees are at a higher risk of mortality in the fall because of higher energy demands in the winter combined with new growth emerging in the spring.

To protect hardwoods, early spring burns need to be avoided because the plants have used up their energy putting out new leaves and are less likely to recover. Areas such as hammocks will burn more infrequently.

BENEFITS OF BURNS

One benefit of these fires is reduction of hazardous fuels, thus increasing protection for people, facilities, and even forests. These burned areas become firebreaks during wildfire outbreaks.

Additionally, there are numerous ecological benefits. Burning enhances habitat used by wildlife including endangered species including the Florida panther, gopher tortoise, eastern indigo snake, and red-cockaded woodpecker. Many people worry about wildlife mortality due to fire, but this is actually rare. Animals are more directly impacted by the alteration of their habitat.

Certain species of plants only appear the first one to two years after a burn. Many trees benefit from fire. The naked seeds of pine and other species such as wiregrass are favored by access to bare mineral soils. Thus burning increases minerals and nutrient in soil and opens up bare patches for seeds to take root.

Ultimately, a land manager desires a mosaic of different ecological transitional stages for plant communities that can be maintained of time with burning. Without fire, hardwood species eventually come to dominate an area. For example, over time without burns the wet prairie off of the boardwalk at Corkscrew would likely transition into a mesic pine flatwood.

There are additional benefits to burning such as controlling disease and insects, and the clearing of overgrown riparian areas. Think of the abundance of new, highly nutritious green shoots growing a month after a prescribed burn. These higher nutrient grasses and forbs are better for herbivores such as deer, which are often sighted foraging in recently burned areas.

BURN UNITS AT CORKSCREW

Corkscrew Swamp Sanctuary is sectioned off into burn units. These burn units help use fire as a management tool. Firebreaks are usually already in place and need only be refreshed instead of newly made, minimizing soil disturbance impacts which often favor invasive plant species. These units also help with recording the frequency of fires.

Fire units often follow borders between different vegetative communities.

The wet prairie is a different burn unit than the pine flatwoods around the Blair Audubon Center. The wet prairie is on a more frequent burn rotation than the flatwoods.

ADVANTAGES AND RISKS

There are disadvantages and risks associated with prescribed fires. For the personnel, it is a hot and tiring all-day process with risk to personal health from smoke inhalation, injuries due to falling or tripping over unseen debris, and overheating and dehydration. If fires occasionally get outside of a burn unit perimeter, staff must work quickly and efficiently to suppress these.

Other risks include fires burning too hot and moving too slowly, which can lead to burning of tree roots or, depending on soil moisture conditions, even the ignition of peat. Because of the complexities associated with prescribed fires, burn crew leaders must be trained and certified.

PLANNING AND BURNING

Planning a prescribed fire takes training and knowledge of the ecosystems, topography, weather, and fire behavior.

Before a burn is conducted, a decision about the kind of weather the burn

needs must be made. The area to be burned and how it will be burned is also noted. Another consideration is how any wind might impact surrounding areas. Wind conditions that would put smoke over roads, airports, etc. are avoided. This is calculated using a smoke screening test.

These are parts of a burn prescription and are required for every burn. Firebreaks or plow lines are put in or replewed as needed ahead of time. These act as access roads for burn crews as well as to help contain the burn within the desired area.

On the morning of the burn, if weather is favorable, the Florida Division of Forestry and local fire stations are called for permits using the burn prescriptions.

Once permitted, the fire crew in protective gear along with equipment such as radios, water tanks, flappers (used to smother creeping flames), rakes (used to cover small flame with sand or dirt or to clear vegetation from an area), and bladder bags (backpacks with water that can be used to put out small flames in unwanted areas) will be situated according to the prescription at the site of the fire.

First, a test fire is started. This allows the burn crew to assess how the

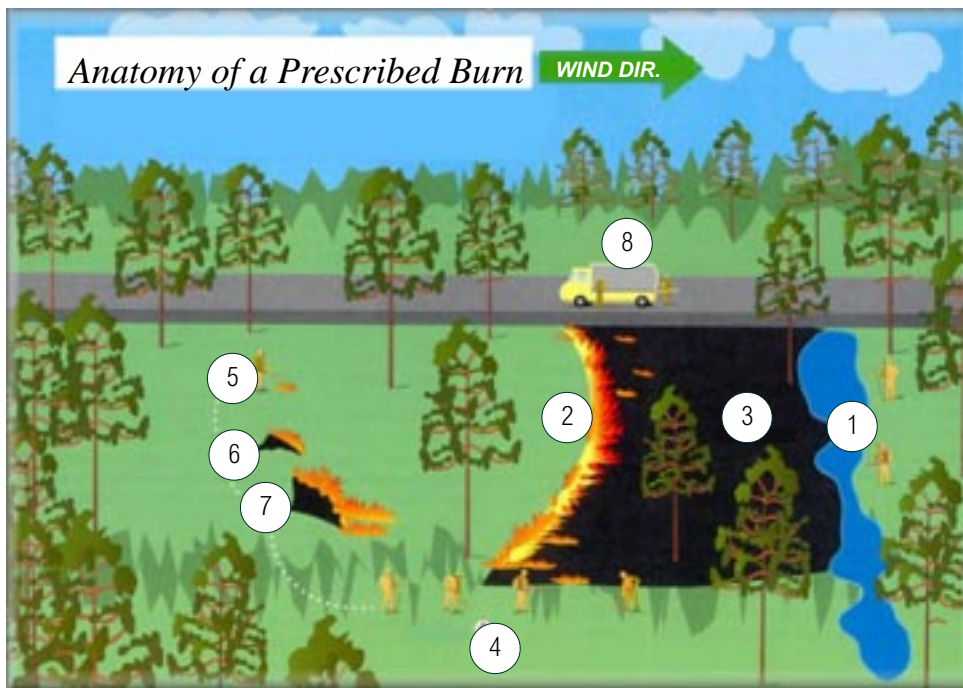
fire is likely to behave. However, fire behavior can and does shift throughout the day as the temperatures rise and relative humidity begins to go down. Throughout the day, weather is monitored for changes.

After a successful test fire, crews proceed with the burn. On the downwind side of a burn, a backing fire is initiated. This is to give added protection downwind of the area being burned (burn unit). The burn unit, weather conditions, and objectives of the burns determine how other ignition techniques will be used. It often requires multiple techniques to get the area burned.

The edges of the unit are constantly being evaluated and observed throughout the burn for spotovers. A spotover is when wind blows an ember outside of the designated burn unit, and these must be put out immediately.

Once the unit has burned and the fire is out, the perimeter of the burn unit is checked for smoldering logs, burning snags, and other hazards that could cause problems later and problems are monitored or extinguished.

Prescribed burns are an extremely useful land management tool that helps control exotics, perpetuate fire-dependent species, improve aesthetics, and enhance wildlife habitat.



Key to the chart

Prescribed burn managers try to find a natural firebreak, such as a creek (1) or they create one with a tractor. From there, they set a downwind backfire (2). This creates a burned out area (3) at which spot the headfires, set in successive ignitions (5), (6), and (7) will stop. Crew members patrol a handline (4) to ensure that the burn is contained. A brush truck (8) equipped with water or foam is on hand to control the fire if it shifts direction or intensity due to wind or other unforeseen conditions.

Chart from Florida Department of Forestry