



Turtle River Times

The newsletter of the A.R.M. Loxahatchee National Wildlife Refuge

*Vol. 1 Issue 2
Sept. - Dec. 2002*

Join us to Celebrate a Century of Conservation

by Sam D. Hamilton

The world's most significant and far-reaching system of conservation lands - the National Wildlife Refuge System - is fast approaching its 100th anniversary on March 14, 2003. The refuge system's centennial is a time for the U.S. Fish and Wildlife Service to reflect back on the history of the system and evaluate our success at protecting and restoring habitat for fish and wildlife. To understand our nation's wildlife refuge system today, it is important to take a look at how the refuge system began.

President Theodore Roosevelt, an avid outdoorsman, was troubled by the rapid demise of herons, egrets, pelicans, and other bird populations. The problem was acute in Florida, where market hunters harvesting feathers for the fashion industry, were engaged in a conflict with conservationists known as the "Feather Wars." On March 14, 1903, without fanfare, Roosevelt set aside Pelican Island, to protect some these devastated species. This was the first time the federal government set aside land just for the sake of wildlife. During his presidency, Roosevelt would go on to establish an additional 54 bird reserves, the precursor to national wildlife refuges.

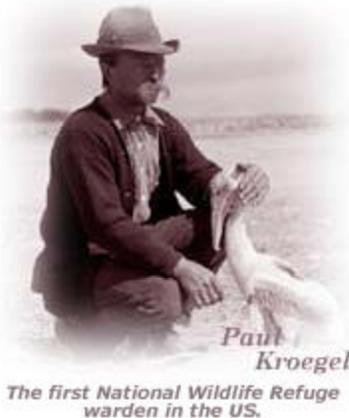
From the tiny five-acre island on Florida's east coast has grown the world's largest network of diverse and strategically located habitats. In the spirit of President Roosevelt, the U.S. Fish and Wildlife Service has been quietly conserving our country's plants and animals of every variety, from cactus to caribou, butterflies to bison,

and salmon to songbirds. Refuges provide sanctuary for endangered species, offer rest stops for migrating birds, and give safe passage to fish.

Today, the National Wildlife Refuge System encompasses almost 95 million acres at 539 wildlife refuges; at least one in every state. Yet as we near 100 years of conservation, many Americans don't know about the refuge system. The National Wildlife Refuge System, with a land base that is larger than the National Park System, is the only federal system of lands where fish and wildlife protection is the first priority.

Refuges are not only important for wildlife, but for people too. Nearly 40 million people visit national wildlife refuges each year to hunt, fish, hike, observe and photograph wildlife. Children use national wildlife refuges as their outdoor classroom. And by providing outdoor activities, refuges also play an important role in many local economies.

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Impoundment Update - Fall 2002

By Marian Bailey - Wildlife Biologist

Update on C6

In October 2001 the newly refurbished cookie cutter was used to break up dense vegetation patches (Figure 1) and was followed by two months of high water flooding. The manipulation was a success as a December drawdown attracted many bird groups such as mottled ducks, blue-winged teal, 15 wader species and some migrating shorebirds. The surface water was kept low through May to allow killdeer and



Figure 1

any black-necked stilts to finish nesting. In June the water level was allowed to rise with summer rains.

We plan to refurbish the rusted and leaking water control structure under Lee road in late summer or early fall 2002.

While this work is being conducted, the water in C6 will be pumped out to expose the culvert and waders of all species should come in to forage on the exposed fish and invertebrates.

Other Work during C6 Drawdown

While the water is low in C6 and B3 additional water structures will be retro-fitted or replaced. These improvements will facilitate greater water control and improve our ability to manage other impoundments.

Depending on how well we can deal with the tremendous amount of water in the impoundments (as of this writing) C7 should have a newly cut look to it by late summer or early fall. The cookie cutter (barring any break-downs) will have opened up dense areas of pickerelweed and severed roots similar to last year (Figure 2). In Florida, a few inches of soil elevation separates uplands and sloughs. We hope to create a number of areas of deeper pools and push up areas to create a bit more topography to attract differing wildlife. After the cut, the impoundment will be flooded to a high water depth to deter rapid regrowth of the cut plants. A drawdown (which should attract birds) is scheduled for late fall or early winter.

An UPDATE on Impoundment C8

The C8 impoundment has changed the most dramatically in the past six months. This impoundment



Figure 2: Flooding after the cookie cutter

had two, exotic infested, small cypress heads and thick cattail and willow growth throughout. The first part of the plan was to restore the cypress heads. Biologist Martin coordinated volunteers to remove exotic Brazilian pepper and dense willow from the southeastern cypress head. A month later she coordinated planting many good sized pond cypress trees to augment the cypress head with the A.R.M. Loxahatchee Foundation. Meanwhile, staff biologist Thomas girdled and killed a thick growth of Brazilian pepper in northern cypress head.

The bulk of this impoundment is a marsh and the second phase of the plan is to prepare it to support a healthy apple snail population. Native apple snails are the primary food source for the federally endangered snail kite, the limpkin (a species of management concern), round-tailed muskrats and many other animals including small alligators. The snails most often lay their eggs in open wet prairie habitat containing a good amount of submersed vegetation. This habitat combination provides adequate food source (periphyton or algae), cover from predators and plant stems to lay their eggs. A combination of mechanical treatments (herbicides, prescribed fire, manual cutting, cookie cutting and flooding) have been used to get dense cattail growth under control (Figure 3).

During the vegetation manipulation phase (March-July) many bird species foraged in C8. White and glossy ibis dominated the landscape with great and snowy egrets, great blue, little blue, tricolored and green herons, limpkins and wood storks adding to the visual show. Red-shouldered hawks nesting nearby frequented C8 and provided numerous meals for their brood. While



Figure 3: After cattail growth management

working in C8 after the prescribed burn, biologist Bailey was delighted to observe a sora or possibly a rare yellow rail. Before the species was solidly identified a red-shouldered hawk snatched it from the cattail stubble. Volunteers Don Flipiak, Mitch Rosenheim, Ron Fleck, Kathy Moch and Glenn Meeker have been extremely helpful to transplant over 300 apple snail egg clusters into C8 from C3 and C4 impoundments. These volunteers have also helped to transplant submersed vegetation such as bladderwort, chara and coontail into C8 and C6. These finely leaved plants provide protection and are a food source for the snails. Other volunteers have helped the biologists to collect and sow native plant seeds such as soft-stem bullrush, tracy's beakrush and smartweed.

In late July, 15 snail kites flew into the cypress head of C8 to roost! Water levels will be kept relatively high in C8 compared to other impoundments to retard cattail regrowth, simulate the wet prairie habitat and support apple snail populations. Perhaps this winter or next spring, we plan to work with the Grumps Construction Company (volunteer group) to lengthen the boardwalk and have the long awaited photo blind built.

Update on C2E

This impoundment was not on the list of planned manipulations for this year, but when one gets lemons; make lemonade! This impoundment is deeper than most because the soil was used to raise ground level for the administration building construction. Cattail had been encroaching into C2E for years and had just about obliterated open areas and had connected the small tree islands to the levee. Staff mechanic Garcia did an excellent job of cutting the cattail and isolating the shrub patches and tree islands (Figure 4). Severing the connection between tree islands and the levee keeps terrestrial predators from anhinga and wading bird nests

on these islands. Numerous wading birds began foraging as soon as cutting began and continued to use the impoundment for over two months. The birds would stand on the floating, cut plant pieces and forage for invertebrates and small fish. A family of young limpkins was observed on a shrub patch during the cutting treatment. C2E is our primary fishery reserve as it retains water in its deep center year round and fish



Figure 4

easily survive. Look for the newly isolated tree islands to have many nesting waders this spring.

Update on B3

The native cypress, pond apple and red maple saplings planted by volunteers on Everglades Day 2000 in B3 are surviving and growing. This impoundment is on the opposite side of Lee road from C6. It is difficult to control the surface water level for the newly planted trees because this impoundment shares the rusted culvert under Lee road. School volunteer groups have helped to hand pull encroaching cattail in B3, because prescribed burns or mechanical treatments can not be used around the densely planted young cypress.

We Have an Identity Crisis

Although Loxahatchee means "turtle river" and seemed a good name for our newsletter, some folks suggested that we use something with the word Loxahatchee in the title. We would like for you, our readers, to give us your suggestions. If you like the current name, we would also like to know that too.

You may submit your opinions and suggestions to lois_chapman@fws.gov or you may call the visitor center at 561-734-8303. If your suggestion is chosen, we would like to have your name so we may credit you in our next newsletter.

Muskrats on the Refuge

By Marian Bailey - Wildlife Biologist



Muskrat feeding platform

Round-tailed muskrats are one of the mammals found in the Everglades ecosystem. These small gnawing animals are not true muskrats, rather they are aquatic voles limited to peninsular Florida and southeast Georgia. These vegetarians build from 1-4 'houses' of herbaceous plant material at a time. They also build 'platforms' to bask, eat and communicate. Many apple snail shells have been observed on these



Muskrat nests uncovered by drought

platforms in C3 and C4. During low water conditions they burrow underground. Extended drought conditions are hard on these wetland dependent animals. These relatively short lived animals are an excellent protein source for predatory animals of the Everglades. During a prescribed burn or wildfire the houses can survive intact because they are usually surrounded by water.

Scouts Join Invasives Battle

Local Senior Girl Scout Troop 853 from Boca Raton will be pulling cattail in one of the refuge impoundments on October 12. The impoundment had been planted with cypress tree seedlings as part of a cypress tree restoration project spearheaded by the Arthur R. Marshall Foundation. The scouts will be removing the rapidly growing cattail in order to give the young trees a chance to get established. The project is being led by Senior Girl Scout Amanda Alexandrich, who is in the Nova Service Unit of the Palm Glades Girl Scout Council, as part of her Gold Project.

On October 19, during National Wildlife Refuge Week, Senior Boy Scout Troop 853 will be removing exotic Brazilian pepper from the refuge along the L-40 levee just south of the Headquarters boat ramps. Project Leader Stephen Alexandrich and his fellow scouts are part of the Gulf Stream Council in Boca Raton. The pepper removal is part of an Eagle Scout project.

Refuge Volunteer Receives Community Award

Volunteer Mildred Hinkle has been awarded the 2002 Women of Grace award through the Bethesda Hospital Foundation in Boynton Beach. The award is given to those women who live in the service area of Bethesda Hospital and who's contributions to the community places them in high regard for their volunteer services. She was nominated by the refuge for her volunteer service to the refuge as well as her contributions to the community in other volunteer roles.



Mildred works two days a week in the refuge administration office, assisting in various secretarial tasks which included updating the refuge filing system. She has also worked in the visitor center answering the myriad of questions asked by visitors. Mildred has also assisted biologists in their alligator count, and helped to clean up the Hobe Sound NWR beach. In addition to all that she has done, Mildred's can do attitude and lovely smile brightens the day for those who have the pleasure of working with her.

Congratulations Mildred!

Refuge Visitor Center to get New Roof

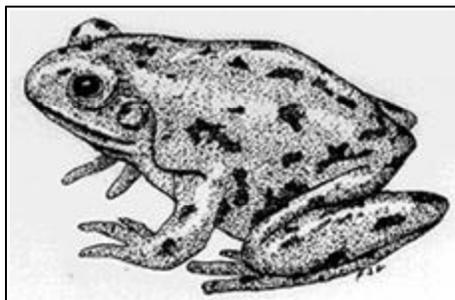
The Refuge visitor center will be getting a new roof and some needed additional repairs scheduled for late October and early November. The center will be closed on some days during that time for worker and visitor safety. Check our web site or call the visitor center at (561) 734-8303 during that time for additional updates.

Is that a gator I hear grunting? No ... that's a FROG!

By Bernie Reeves

What you're hearing is a pig frog (*Rana grylio*), whose call sounds very much like the grunting of a pig, and is often mistaken for the bellowing of an alligator. The pig frog is the second largest frog species in Florida, reaching lengths of 6". The body of the adult pig frog ranges from green to brown in color, with juveniles being more coppery or bronze. They have irregularly shaped, brown spots and pale cream undersides. The main distinguishing feature of the pig frog is the webbing on the hind feet,

**Pig
Frog**



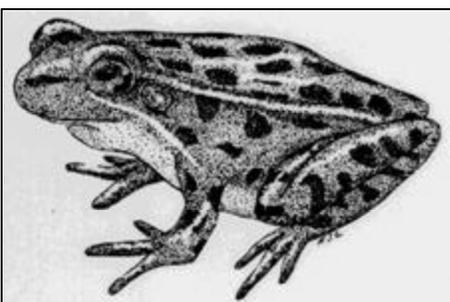
which extends to the tips of the largest toes. Pig frogs inhabit permanent bodies of fresh water, such as marshes or lakes, but usually stay away from the shoreline. They lay their egg in clumps of up to 8,000. The eggs hatch within 2-3 days, the emerging tadpoles being large (3.9" long) with green backs, yellowish bellies and dark patterning. The tadpoles of the pig frog develop slowly, usually overwintering before transforming to the frog stage the following spring.

OTHER FROGS

Although the pig frog attracts most attention, due to its distinctive call, other frog species are also found at the Loxahatchee National Wildlife Refuge. These include true frogs, such as the southern leopard frog, which have enlarged hind legs for jumping and webbed hind feet, and tree frogs, such as the green treefrog, which have specially adapted, enlarged discs on the tips of their toes, to allow them to cling to vertical surfaces.

THE SOUTHERN LEOPARD FROG

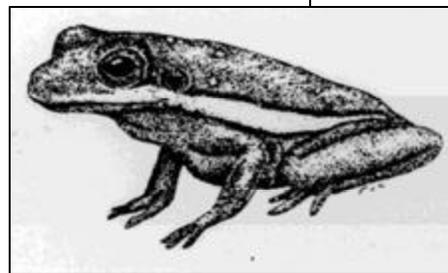
The upper body of the southern leopard frog (*Rana sphenocphala*) ranges in color from light brown to dark green with rows of distinct dark brown spots. This frog is recognized by the distinctive yellow/gold lateral folds which pass



along each side, through the iris of the eye, along the body, to the groin. The southern leopard frog, which makes a variety of guttural sounds, calls throughout the year, but is most vocal in late winter and early spring. It lays up to 1,000 eggs, which hatch within 4-5 days. The tadpoles of the southern leopard frog are olive green with distinct spots. They transform into frogs at approximately 3 months of age.

THE GREEN TREEFROG

The green treefrog (*Hyla cinerea*) is the largest and most frequently seen of Florida's native treefrogs. Its body is usually bright green above, flecked with yellow spots, although it may appear darker during periods of inactivity. This frog is identified by the well-defined white stripes that pass along each side of the body, and which may often have brown borders. The call of the green treefrog, a continuous "gronk gronk gronk", is usually heard on humid evenings between April and October. The frog is found near areas of permanent fresh water, where it lays its eggs in several feet of water. The eggs hatch after 4-6 days into green tadpoles with distinctive yellow stripes reaching from the nostril to the eye. They transform into frogs within approximately 2 months.



Volunteer Wanted: Image Library Helper

One or two volunteers are needed to help label slides and digital images for our image library. Qualifications for consideration are a basic background in photography, and a basic interest and/or background in Florida plants and animals. The volunteer should also be comfortable in a microsoft windows environment and dealing with large quantities of file folders. If you are interested in helping out with this project, contact Lois Chapman at (561) 734-8303 or send an e-mail to lois_chapman@fws.gov

Crossword puzzle answers: Across

1) Engineers, 3) Nesting, 5) Bass, 7) Winter, 10) ArthurRMarshall, 13) Wet, 14) Florida, 15) Apple, 17) Endangered, 19) Grasshopper, 22) Gallinule, 23) Hawk, 25) Yellow, 28) Endangered

Down

1) Exotic, 2) Snowy, 4) Waterhole, 6) Snail, 8) Fern, 9) Protect, 11) Loxahatchee, 12) Summer, 13) Wildlife, 16) Panther, 18) Airplant, 20) Ospreys, 21) Management, 24) Swamp, 26) Lily, 27) Habitat

2002/2003 Winter Events Schedule

Centennial Refuge Series Photography Exhibit "South Florida's Refuges - A Centennial Legacy"

By Claudine Laabs

October 5, 2002 through December 2002 at the Visitor Center

This exhibition features photography from four South Florida National Wildlife Refuges: A.R.M. Loxahatchee N.W.R., Pelican Island N.W.R., J.N. "Ding" Darling N.W.R., and the National Key Deer Refuge. Each refuge is special and represents a habitat typical of Florida. These areas are protected by the National Wildlife Refuge system, which began with Pelican Island in 1903. There are two images from each of these refuges that reflects the diversity and wonder of the natural world that is in our care.

Claudine Laabs is called an artist with a camera and thinks that good photography is painting with light. Her photographs have been published in Audubon calendars, World Wildlife Fund books and many magazines. Her solo exhibitions include the Boca Raton Museum of Art and the Historical Museum of Southern Florida as well as galleries. Claudine's slide programs include "Florida's Everglades-Nature's Masterwork" and "Birds of South Florida and Up the Upper Amazon."

NATIONAL WILDLIFE REFUGE WEEK: A CELEBRATION OF OUR NATIONAL WILDLIFE REFUGE SYSTEM

Our nation's wildlife refuge system. These spectacular lands began with one tiny Florida refuge created by President Theodore (Teddy) Roosevelt on March 14, 1903. Since then, over 93 million acres of our natural resources have been set aside for future generations.

Celebrate with us by attending one or more of the week-long activities listed below.

Sunday, October 13

BUTTERFLIES & WILDFLOWERS WALK **10:00PM Visitor Center Parking Lot**

Join a volunteer naturalist for a walk to view these small wonders of the refuge.

SWAMP STROLL **2:00PM Visitor Center**

Enjoy the beauty of a cypress swamp from a half-mile long boardwalk trail. Learn about "swamp tea," floating plants, and thigmotropism as a naturalist reveals the swamps's secrets to visitors.

Wednesday, October 16

CENTENNIAL TIME-LINE GAME **1:00PM Visitor Center**

Join refuge staff and test your historical and chronological skills in this fun game about your National Wildlife Refuges and the National Fish & Wildlife System.

Saturday, October 19

EARLY BIRD SPECIAL **7:30AM Marsh Trail**

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

EXOTICS REMOVAL PROJECT

Boy Scout Troop 325 will be working the day on removing invasive exotic plants from the refuge as part of an effort to maintain and restore refuge natural resources.

CANOEING THE EVERGLADES **8-10:00AM Headquarters Boat Ramp**

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended.

RESERVATIONS REQUIRED

CENTENNIAL PRESENTATION

2:00PM Visitor Center

Join refuge staff for an exciting powerpoint look at the history of the National Wildlife Refuge System and the U.S. Fish and Wildlife Service.

Saturday, November 2

EARLY BIRD SPECIAL **7:30AM Marsh Trail**

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CANOEING THE EVERGLADES **8-10:00AM Headquarters Boat Ramp**

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended.

RESERVATIONS REQUIRED

2002/2003 Winter Events Schedule

Wednesday, November 6

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Friday, November 8

GOOD BUGS, BAD WEEDS

2:00PM Visitor Center

Join USDA research entomologist (bug man) Phillip Tipping for insight into the fight to keep exotic pest plants at bay. Find out why insects are an important part in keeping a healthy Florida environment.

Saturday, November 9

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

BUTTERFLIES & WILDFLOWERS WALK

**10:00AM Visitor Center
Parking Lot**

Join a volunteer naturalist for a walk to view these small wonders of the refuge.

Sunday, November 10

PHOTOGRAPHY WORKSHOP

3:00PM Visitor Center

Photographer John J. Lopinot provides valuable instruction on how to take award-winning nature photographs. Participants are encouraged to bring three slides or prints for critique.

RESERVATIONS REQUIRED

Wednesday, November 13

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

NIGHT PROWL

7:30PM Visitor Center

Experience the refuge after dark. See the creatures that come out after the sun sets. **RESERVATIONS REQUIRED**

Friday, November 15

CENTENNIAL REFUGE SERIES

1:00PM Visitor Center

Pelican Island, our first national wildlife refuge, and Merritt Island, Lake Wales Ridge, St Johns, and Archie Carr National Wildlife Refuges are highlighted in this special centennial series about our refuge system. Come and learn about our Florida refuge neighbors.

Saturday, November 16

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CANOEING THE EVERGLADES

8:00AM Headquarters Boat Ramp

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended. **RESERVATIONS REQUIRED**

Sunday, November 17

SWAMP STROLL

2:00PM Visitor Center

Enjoy the beauty of a cypress swamp from a half-mile long boardwalk trail. Learn about "swamp tea," floating plants, and thigmotropism as a naturalist reveals the swamp's secrets to visitors.

Wednesday, November 20

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Friday, November 22

FIRE FIGHTER

2:00PM Visitor Center

Interpretive Specialist Serena Rinker describes her experiences while fighting wildfires in Oregon. Join her for her pictorial account of one of the worst fire seasons in recent years.

Saturday, November 23

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CENTENNIAL REFUGE SERIES

1:00PM Visitor Center

J.N. Ding Darling National Wildlife Refuge is highlighted in this special centennial series about our refuge system. Find out about this beautiful Gulf refuge on Sanibel Island and its inhabitants.

Sunday, November 24

SUNSET BIRD WALK

4:00PM Marsh Trail

Late-day sightings may include night herons, snail kites, and other birds coming home to roost. Bring binocular, field guide, and insect repellent.

Wednesday, November 27

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

2002/2003 Winter Events Schedule

Thursday, November 28

THANKSGIVING

Visitor Center and Trails will be open.

Saturday, November 30

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CANOEING THE EVERGLADES

8:00AM Headquarters Boat Ramp

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended.

RESERVATIONS REQUIRED

FLORIDA'S MAMMALS

1:30PM Visitor Center

Join Busch Wildlife Sanctuary Director David Hitzig as he shows us some of Florida's native mammals and explains their role in the environment.

Sunday, December 1

CENTENNIAL REFUGE SERIES - SOUTH FLORIDA'S REFUGES & BIRDS OF THE EVERGLADES

3:00PM Visitor Center

Join nature photographer Claudine Laabs as she presents highlights of South Florida's Refuges in an exciting visual display of birds of the Everglades.

Wednesday, December 4

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Friday, December 6

CENTENNIAL REFUGE SERIES

1:00PM Visitor Center

Florida Panther and Ten Thousand Lakes National Wildlife Refuges are highlighted in this special series celebrating the refuge system's 100th birthday. Come and learn about our Southwest Florida refuge neighbors.

Saturday, December 7

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

INVASIVE PLANT CLINIC

1:00PM Visitor Center

Plant ecologist Chris Lockhart will talk about Palm Beach County's Invasive Pest Plant Ordinance, explain how it can help save our native wildlife, and show what native alternatives are available. A drawing for free plants will be held for participants.

Sunday, December 8

SWAMP STROLL

2:00PM Visitor Center

Enjoy the beauty of a cypress swamp from a half-mile long boardwalk trail. Learn about "swamp tea," floating plants, and thigmotropism as a naturalist reveals the swamp's secrets to visitors.

Wednesday, December 11

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

The 500th refuge, Canaan Valley NWR (West Virginia), is the highest valley east of the Rocky Mountains and protects remnant plant and animal species that have been lost elsewhere.

NIGHT PROWL

7:30PM Visitor Center

Experience the refuge after dark. See the creatures that come out after the sun sets. **RESERVATIONS REQUIRED**

Friday, December 13

INVASIVE EXOTICS

A NATIONAL CONCERN

A NATIONAL FIGHT

1:30PM Visitor Center

Join Tony Pernas of the National Park Service, as he explains the role of the FLCEPMT, a multi-agency strike team working to combat exotic plant invasives in the Caribbean and Florida. Find out how this team is fighting the invasive plant threat to our natural resources.

Saturday, December 14

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CANOEING THE EVERGLADES

8:00AM Headquarters Boat Ramp

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended. **RESERVATIONS REQUIRED**

Wednesday, December 18

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Please note those programs requiring reservations. For reservations and information, call (561) 734-8303.

2002/2003 Winter Events Schedule

Saturday, December 21

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Wednesday, December 25

CHRISTMAS DAY

Visitor Center will be closed. All trails will be open.

Saturday, December 28

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CANOEING THE EVERGLADES

8:00AM Headquarters Boat Ramp

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended. **RESERVATIONS REQUIRED**

Sunday, December 29

SUNSET BIRDING

4:00PM Marsh Trail

Late-day sightings may include night herons and snail kites coming home to roost. Bring binocular, field guide, and insect repellent

Wednesday, January 1

HAPPY NEW YEAR

The Visitor Center and trails will be open.

20th ANNUAL PHOTO CONTEST

Entries can be mailed or delivered in person to the refuge Visitor Center between January 1-20, 2003. Information, contest rules, and entry forms will be available in the Visitor Center.

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Friday, January 3

CENTENNIAL REFUGE SERIES

1:00PM Visitor Center

National Key Deer Refuge is highlighted in this special series celebrating the refuge system's 100th birthday. Get a taste of the Keys and learn about our Florida refuge neighbor.

Saturday, January 4

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

POLE CANOEING THE EVERGLADES

1:00PM Meet at Visitor Center for Directions

Steve Bass demonstrates the traditional stand-up method of travel through the Everglades practiced by Native Americans.

Sunday, January 5

SWAMP STROLL

2:00PM Visitor Center

Enjoy the beauty of a cypress swamp from a half-mile long boardwalk trail. Learn about "swamp tea," floating plants, and thigmotropism as a naturalist reveals the swamp's secrets to visitors.

Wednesday, January 8

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

NIGHT PROWL

7:30 PM Visitor Center

Experience the refuge after dark. See the creatures that come out after the sun sets. **RESERVATIONS REQUIRED**

January 10 & 11, 2003

LOXAHATCHEE NATURAL HISTORY ASSOCIATION ART CONTEST & SHOW

Entries will be accepted from 12-4 PM on January 10, 2003 and from 9 AM-12 PM on January 11, 2003. Contest rules and entry forms will be available in the Visitor Center.

Saturday, January 11

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CANOEING THE EVERGLADES

8:00AM Headquarters Boat Ramp

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended. **RESERVATIONS REQUIRED**

Sunday, January 12

ART CONTEST RECEPTION

1:00PM - 3:00PM Visitor Center

A public reception for artists displayed in this year's show will be held in the Visitor Center. Refreshments provided by the Loxahatchee Natural History Association.

SUNSET BIRDING

4:00PM Marsh Trail

Late-day sightings may include night herons and snail kites coming home to roost. Bring binocular, field guide, and insect repellent.

2002/2003 Winter Events Schedule

Wednesday, January 15

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Saturday, January 18

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CENTENNIAL REFUGE SERIES

1:00PM Visitor Center

Okefenokee National Wildlife Refuge, in southern Georgia, is highlighted in this special series celebrating the refuge system's 100th birthday. Find out about this special place and the mysterious swamp from which it gets its name.

Sunday, January 19

SWAMP STROLL

2:00PM Visitor Center

Enjoy the beauty of a cypress swamp from a half-mile long boardwalk trail. Learn about "swamp tea," floating plants, and thigmotropism as a naturalist reveals the swamp's secrets to visitors.

Wednesday, January 22

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Friday, January 24

WILDLIFE AROUND US

1:30PM Visitor Center

Debbie Fritz-Quincy of the Hobe Sound Nature Center will give us a live look at some of Florida's native animals.

Saturday, January 25

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CANOEING THE EVERGLADES

8:00AM Headquarters Boat Ramp

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended.

RESERVATIONS REQUIRED

CENTENNIAL REFUGE SERIES

1:00PM Visitor Center

Chassahowitzka and Crystal River National Wildlife Refuge, in north central Florida, are highlighted in this special series celebrating the refuge system's 100th birthday. Learn about the endangered manatees and whooping cranes that these refuges protect.

Wednesday, January 29

EARLY BIRD SPECIAL

7:30AM Marsh Trail

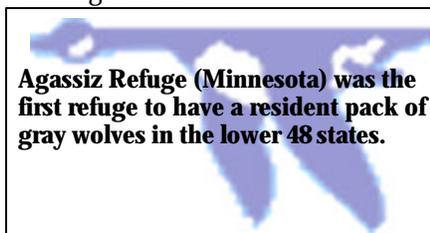
This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Friday, January 31

WILDLIFE INVADERS

2:00PM Visitor Center

What effect does exotic wildlife have on the refuge? Biologist Bill Thomas reveals the threat of exotic animals to the refuge and discusses what strategies will be used to manage them.



Agassiz Refuge (Minnesota) was the first refuge to have a resident pack of gray wolves in the lower 48 states.

Saturday, February 1

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Sunday, February 2

SWAMP STROLL

2:00PM Visitor Center

Enjoy the beauty of a cypress swamp from a half-mile long boardwalk trail. Learn about "swamp tea," floating plants, and thigmotropism as a naturalist reveals the swamp's secrets to visitors.

SUNSET BIRDING

4:00PM Marsh Trail

Late-day sightings may include night herons and snail kites coming home to roost. Bring binocular, field guide, and insect repellent.

Wednesday, February 5

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

NIGHT PROWL

7:30 PM Visitor Center

Experience the refuge after dark. See the creatures that come out after the sun sets. **RESERVATIONS REQUIRED**

Saturday, February 8

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Please note those programs requiring reservations. For reservations and information, call (561) 734-8303.

2002/2003 Winter Events Schedule

EVERGLADES DAY

8:00AM - 4:00PM

The day's events include birding, family walks, hands-on activities, music, food, children's activities, exhibits, and live programs. Contact the Visitor Center for more information.

Wednesday, February 12

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Saturday, February 15

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CENTENNIAL REFUGE SERIES

1:00PM Visitor Center

Crocodile Lake National Wildlife Refuge, in the Florida Keys, is highlighted in this special series celebrating the refuge system's 100th birthday. Meet Manager Steve Klett and learn about our Florida refuge neighbor.

Wednesday, February 19

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Thursday, February 20

RESEARCH - WHAT'S GOING ON?

2:30PM Visitor Center

Senior Refuge Biologist Dr. Laura Brandt discusses what research and monitoring is being conducted on the refuge, findings, and plans for future studies.

Saturday, February 22

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

CANOEING THE EVERGLADES

8:00AM Headquarters Boat Ramp

Take a journey through the Everglades with an interpreter on our canoe trail. Bring canoe, PFD, water, sun/rain protection, and insect repellent. Some canoeing experience is recommended.

RESERVATIONS REQUIRED

Sunday, February 23

SWAMP STROLL

2:00PM Visitor Center

Enjoy the beauty of a cypress swamp from a half-mile long boardwalk trail. Learn about "swamp tea," floating plants, and thigmotropism as a naturalist reveals the swamp's secrets to visitors.

Wednesday, February 26

EARLY BIRD SPECIAL

7:30AM Marsh Trail

This one-mile walk is for the birds and the early risers. Bring binocular, field guide, and insect repellent.

Friday, February 28

FLORIDA'S ALLIGATORS AND CROCODILES: MONSTER OR MYTH?

1:30PM Visitor Center

Hobe Sound Nature Center Naturalist Peter A. Quincy, will unlock the mysteries of these fascinating reptiles.

We have many more activities in the works for March and April. Look for the January issue of the Turtle River Times and check the "News and Happenings" portion of our web site.

Refuge Hours & Fees

The refuge is open to the public from sunrise to sunset daily. Exact times are posted at each entrance and change with the hours of daylight. Currently the refuge opens at 6:00AM and closes at dusk. Exact hours are posted on our web site.

Winter hours for the Visitor Center which begin on October 7th are Monday through Friday 9am to 4pm and Saturday and Sunday from 9:00AM to 4:30PM.

A fee of \$5.00 is charged to *private* vehicles entering the refuge. When the fee booth is unmanned, visitors are subject to the honor system and should pay at the fee shelter next to the fee booth.

Meet the Staff

Project Leader... Mark Musaus
Refuge Operation Specialist.... Mindy Gautreaux

Everglades Program Team.... Michael Waldon, April Thompson, Nick Aumen, Paul McCormick, Leslie MacGregor, Matt Harwell

USFWS Ecological Services.... Cindy Brashear

Administration.... Kim Arserio, Jean Ryan

Law Enforcement.... William Calvert

Wildlife and Habitat Management....

Laura Brandt, Bruce Arrington, Gayle Martin, William Thomas, Jr.; Don Filipiak, Allison Snow (USGS), Robert Rearden, Camille Darby

Maintenance Operations.... Steve Matzkow, Manuel Garcia, Jerry Grist, Alen Hansen

Environment Education &

Interpretation.... Lois Chapman, Serena Rinker, Todd Gabel

Fee Staff.... Keith Boliek, Marie Pohl

Loxahatchee Natural History Association News

ANNUAL PHOTO CONTEST KICKS-OFF CENTENNIAL

January 1, 2003, will be a special day—not only does it herald the beginning of the Centennial of the National Wildlife Refuge System, but it also initiates the opportunity to enter prints or slides to the Refuge’s 20th Annual Photo Contest, sponsored by the Loxahatchee Natural History Association. A prints (only) competition and a slides (only) competition will be open to all **amateur photographers**. Images must have been taken on the refuge and not entered in previous refuge contests. Digital photography will continue to be permitted in the print competition and is expected to gradually assume a greater role in the future.

The unofficial kick-off for the Photo Contest will be a free seminar conducted by Mr. John J. Lopinot, Photographic Editor of the Palm Beach Post, on Sunday, November 10, at 3:00PM, in the refuge visitor center auditorium. (Seating is limited, so sign up quickly.) For reservations, call (561) 734-8303. We encourage you to attend this free seminar to hone your photographic skills and “learn how to shoot award-winning nature photographs.”

Photo Contest rules and entry forms will be available by mail or at the Visitor Center from mid-September. Remember, this year submission dates for Prints and Slides will begin earlier than last year—January 1, 2003 and close until January 20, 2003. If you think you are not on our mailing list, either write to A.R.M.L.N.W.R. Photo Contest, A.R.M. Loxahatchee National Wildlife Refuge, 10216 Lee Road, Boynton Beach, FL 33437, call (561) 734-8303, or stop by the Visitors Center after September 15, 2002. We are looking forward to an exciting competition and welcome your participation.—Michael Rosenbaum, Chairman, Photographic Contest Committee

In 1935, Red Rock Lakes NWR (Montana) was created to save the last 73 endangered trumpeter swans known in the wild. Today, 14,000 of these majestic birds are found in Alaska, Montana, and the upper Midwest.

“SPIRIT of the REFUGE” The 15th Annual LNHA Art Contest

Visit the Refuge where, amid the tranquility of nature, light, color, and form play together to delight your artistic eye and arouse your creativity for our annual art contest and show.

There will be two categories. The Open Category includes prints, oils, acrylics, watercolor, mixed media, and drawings. The Sculpture Category will be judged separately. Crafts, photography, computer generated art, or posters will not be accepted. Contestants may submit two entries that have not been shown in any previous refuge art contest.

Entries will be accepted from 12-4 PM on January 10, 2003 and 9 AM-12 PM on January 11, 2003. Contest rules will be available in the visitor center. A public reception for artists displayed in the show will be held on Sunday January 12, in the visitor center from 1-3 PM with refreshments provided by the Association.

To Join:

Please fill out the following and mail to:
LNHA Friends of the Refuge
P.O. Box 2737
Delray Beach, FL 33447-2737

Name: _____

Address: _____

City: _____

State and Zip: _____

Phone: _____

E-Mail: _____

Individual \$8: _____ Sustaining \$25: _____

Student \$5: _____ Supporting \$50: _____

Family \$12: _____ Organization \$50: _____

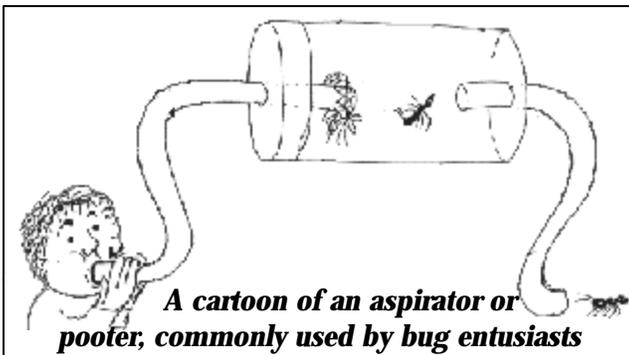
Contribution: _____

What's Up With Biology?

By Camille Darby, Refuge Intern

When you think of wildlife, as in National Wildlife Refuge, what things pop into your head? At A.R.M. Loxahatchee NWR you probably think of alligators, wading birds, hawks, butterflies, dragonflies... Well, what about ants? That's right, ants!

Let me explain. I am a Masters student at Florida Atlantic University and am lucky enough to be conducting my thesis research project here at the refuge. Specifically, I am studying the ant communities on tree islands in the interior marsh and how they are affected by the presence of an exotic climbing fern, *Lygodium microphyllum*, which has invaded many areas of the refuge. A large part of my research involves going out to the tree islands and collecting ants using a variety of methods. One method involves sucking the ants into vials using a contraption called an aspirator, also affectionately known to many entomologists as a pooter. I also collect ants by beating on tree limbs with a long pole and collecting the ants that fall onto a sheet held beneath. Believe it or not these methods are highly affective and I have collected a large number of ant samples from the refuge.



A cartoon of an aspirator or pooter, commonly used by bug enthusiasts

You may be wondering what's so great about ants. Well, ants are very important in the environment for many reasons. Because most insects are dependent upon plants for food and/or shelter, they are often used as indicators of the health of the vegetation community. There are many attributes that make ants, in particular, useful for biodiversity studies. Many species of ants are present in the world and in most habitats. Ants make up a large amount of the biomass in almost every habitat (Alonso and Agosti 2000). Ants have stationary nesting habitats, which allow them to be resampled over time (Alonso and Agosti 2000). And ants exhibit sensitivity to environmental change (Alonso and Agosti 2000). These 'ant attributes' make them an ideal group of insects to use for my study.

So, how many ants would you guess we have here at A.R.M. Loxahatchee NWR? I have collected a total of 44 species of ants from areas all over the refuge, including tree islands, cypress areas, and around refuge buildings. (How do these results measure up? According to the Florida Gap Analysis Project there are 71 species of ants that have been collected in Palm Beach County and 41 of these species might occur in tree island habitats). I will use the information I gather about the ants on the refuge to compare different habitats and evaluate how the ant communities are affected by differences in features, such as vegetation and rainfall. I expect to graduate in May 2003, so stay tuned for future ant updates and the outcomes of my study.

Alonso, L.E. and D. Agosti. 2000. Biodiversity studies, monitoring, and ants: an overview. In: D. Agosti, J.D. Majer, L.E. Alonso, and T.R. Schultz (ed.s) Ants: Standard Methods for Measuring and Monitoring Biodiversity, pp. 1-9, Smithsonian Institution Press, Washington, D.C.

Continued from Page 1...

As we draw near to our 100th anniversary in 2003, I invite you to celebrate the legacy of natural lands that President Theodore Roosevelt began, and that many dedicated conservationists worked to sustain. Visit one of the southeast's more than 130 refuges; volunteer to work on a refuge near you; take your children or grandchildren fishing at a national wildlife refuge; join a refuge support group; or assist one of the numerous conservation organizations that help us protect some of our last great wild places.

The National Wildlife Refuge System is an enduring acknowledgement and reminder of the proud natural heritage of our great country. I think that President Theodore Roosevelt would be proud of the refuge system that the U.S. Fish and Wildlife Service and its many conservation partners have built, and proud of Americans for their growing support of wildlife refuges. Come and celebrate a century of conservation with us.

Sam D. Hamilton is the Director of the Southeast Region of the U.S. Fish and Wildlife Service. For more information about the centennial of the National Wildlife Refuge System, including the national centennial celebration to be held at Pelican Island National Wildlife Refuge in Sebastian, Florida on March 14, 2003, visit refuges.fws.gov/centennial.

Loxahatchee's Magnificent Maintenance Crew

By Mindy Gautreaux, Refuge Operation Specialist



**Jerry,
Steve, and
Manny**

Steve Matzkow, Engineering Equipment Operator

Steve Matzkow has worked for the refuge for 27 years, beginning here in July 1976 as a Laborer, and working his way up to Maintenance Supervisor, where he directs one of the largest maintenance programs in the Southeast. Steve, the "Flash," is always on the move doing at least three things at once, so don't blink or you may miss him! Steve works as a heavy equipment operator maintaining our many miles of roads and levees; he performs his "verbal judo" on contractors

The few, the proud, the hardworking, the dedicated..... that is our Maintenance Crew at the refuge. There are only four, but don't let these guys fool you. They do much, much more than mow grass, change oil, and grade roads.

to ensure maintenance contracts are effectively completed; he prioritizes and directs the repair and maintenance of all refuge buildings and equipment; he supervises three maintenance employees; he works effectively with refuge biologists to manage the refuge impoundments for wildlife; and as if that isn't enough, he can work any twenty-year old into the ground! We

are very proud that Steve is leading our Maintenance Program, and we congratulate him on his "Wage Grade Employee of 2001" award, presented to him by the U.S. Fish and Wildlife Service, the National Fish and Wildlife Foundation, and the Southeast Region Friends Group Association.



Manny Garcia, Maintenance Mechanic

Manuel Garcia, or "Manny" as we know him, began working for the refuge July 2001. Manny came to us from the Department of Defense where he worked as a mechanic for the Navy on St. Nicholas Island in California. Previous to that, Manny worked in Louisiana and even a few years in Bosnia. Manny is responsible for maintaining 20 refuge vehicles, several pieces of heavy and small equipment, several outboard motorboats, seven airboats, and ensuring the shop facilities are orderly and safe to work in. This is no small feat! Manny assists with impoundment management whether it involves moving pumps, or cutting vegetation with the "cookie-cutter". His computer proficiency enables him to better track vehicle and equipment maintenance, and his positive attitude and eagerness to get the job done makes him a vital part of the refuge team .

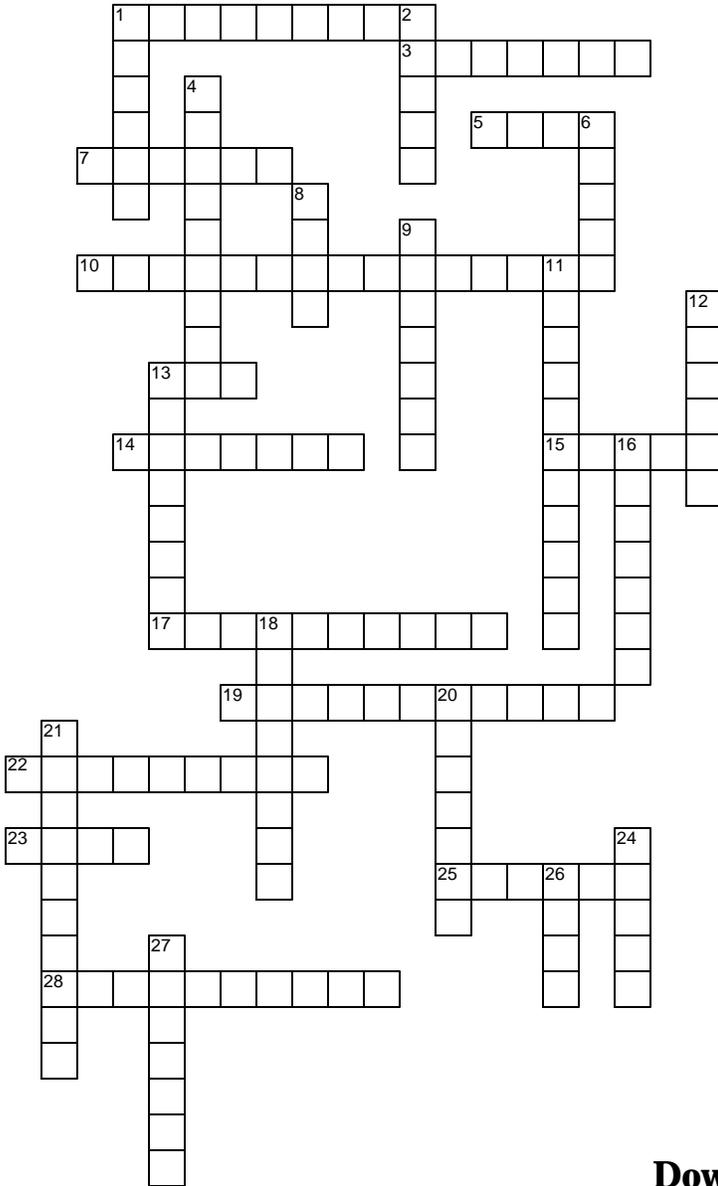
Jerry Grist, Maintenance Mechanic Helper

Jerry Grist began working for the refuge in August of 1999. Before working for the Service, Jerry worked for the Department of Defense in Columbus, Ohio, for ten years. Jerry spends the majority of his time maintaining the refuge facilities and grounds (mowing, trash details, etc.), however he also assists with impoundment management by operating the "cookie-cutter," and moving and repairing pumps that transfer water between impoundments. Jerry performs maintenance and repairs on small equipment and he also assists maintenance staff with larger scale projects. Jerry ensures both the main refuge entrance and the south refuge entrance, located at Loxahatchee Road (Hillsboro Recreation Area), is aesthetically pleasing to the visiting public. Some days, as we punch away at our keyboards, we are all a little envious of Jerry when we see him zoom by on his lawnmower!

Allen Hansen, Maintenance Worker

Allen Hansen began on duty August 12 and is working as a maintenance worker in a two-year, "term" position. Allen comes to us from the Department of Defense where he worked as a maintenance worker maintaining facilities for the Naval base in the Florida Keys. Allen is a welcome addition to the Maintenance Program that has felt a void since the absence of long-time employee, Maintenance Worker Randy Grabo. Randy worked for the refuge for over 22 years, but unfortunately due to medical reasons, has retired from the Service.

Gator Bert's Kids Corner



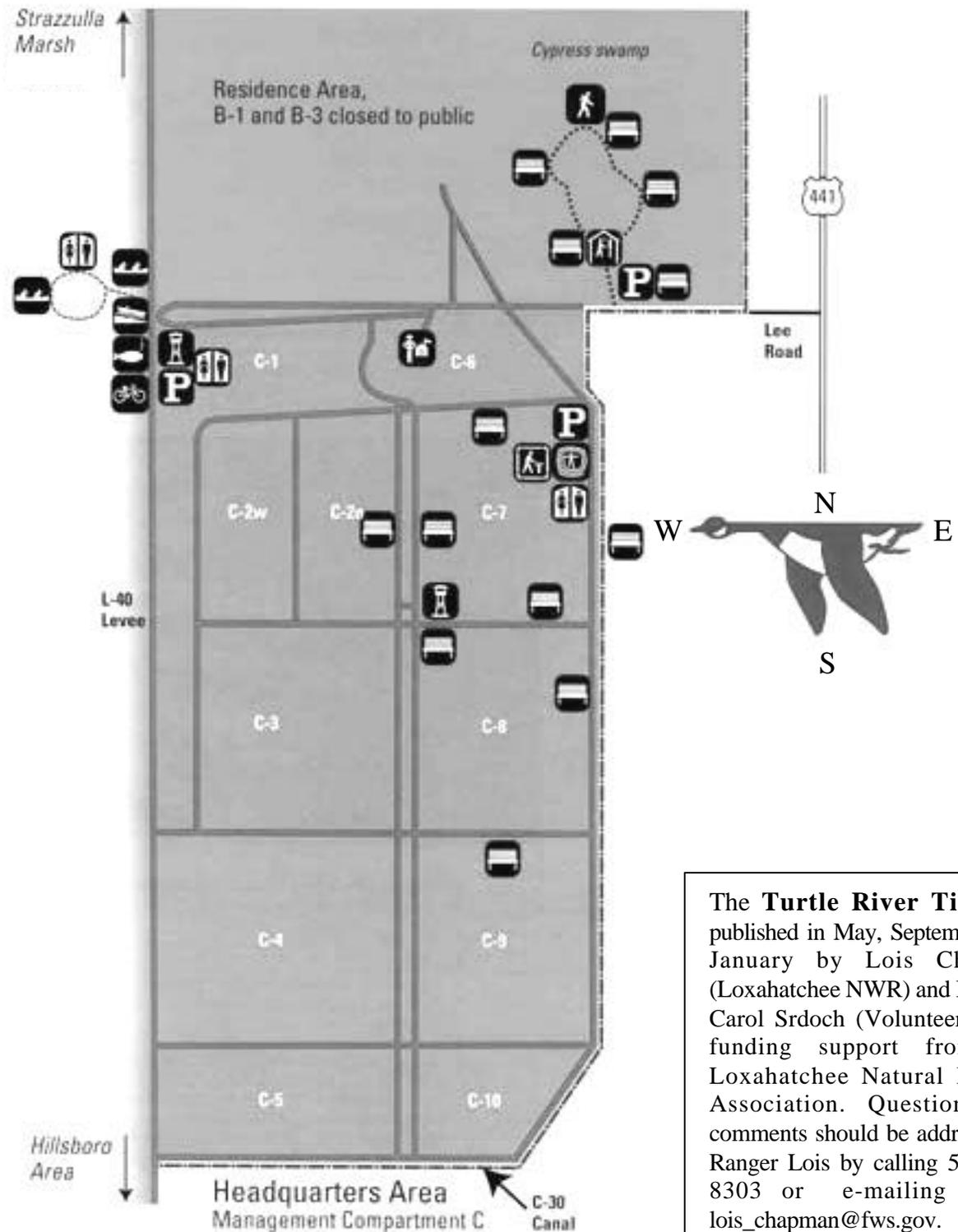
Across

1	Army Corps of__.
3	There can be as many as 35,000 to 40,000 wading birds at Loxahatchee during their __ season.
5	Largemouth __ are a popular game fish.
7	__ is the dry season.
10	You are visiting __ __ __ Loxahatchee National Wildlife Refuge.
13	Summer is the __ season.
14	The __ Fish and Wildlife Conservation Commission.
15	The pond __ tree can be seen from the boardwalk.
17	The alligator was once an __ species.
19	The southeastern lubber __ is several inches long, very colorful, and hops!
22	The bird, purple __, can often be seen walking on the spatterdock.
23	This bird of prey can often be seen flying high in the sky.
25	Coral snakes are red, black, and __.
28	When there are only a few animals left of a species, it is said to be __.

Down

1	Plants that are not native to the refuge are called __ plants.
2	The __ Egret is a small white bird with yellow feet. Its feathers were once hunted for plumes.
4	Gators dig these to preserve their water supply
6	The apple __ is the primary food source for the snail kite.
8	tropical curly-grass __
9	Loxahatchee is designed to preserve and __ what is left of the Northern Everglades.
11	__ is helping to protect the (snail) kite and apple snail
12	In the __, water covers most of the Everglades.
13	US Fish and __ Service
16	People often confuse the bobcat and the Florida __.
18	An __ is an epiphyte, which is a plant that grows on other plants instead of soil.
20	__ are white and black raptors that can be seen on the marsh trail.
21	South Florida Water __ District.
24	In addition to the swamp fern, the __ fern can be found on the cypress swamp boardwalk.
26	You can see the white water-__ and floating heart in a slough.
27	The areas in which an animal lives.

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 FISH AND WILDLIFE SERVICE
 A.R.M. Loxahatchee National Wildlife Refuge
 10216 Lee Rd.
 Boynton Beach, FL 33437-4796



The **Turtle River Times** is published in May, September, and January by Lois Chapman (Loxahatchee NWR) and Bob and Carol Srdoch (Volunteers) with funding support from the Loxahatchee Natural History Association. Questions and comments should be addressed to Ranger Lois by calling 561-734-8303 or e-mailing her at lois_chapman@fws.gov.