Laguna
de Santa Rosa
Foundation

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December 1, 2005

Craig J. Wilson, Chief
Water Quality Assessment Unit
Division of Water Quality
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Dear Mr. Wilson,

Since 2003, the Laguna Foundation has been leading local efforts to control invasive *Ludwigia* in the Laguna de Santa Rosa. This weed has spread very quickly through the Laguna's shallow waterways, creating broad concerns for public health, environmental integrity, and flood control. Dense growths of *Ludwigia* provide protective habitat for mosquito vectors of West Nile virus, filling in wetlands and displacing native vegetation. We are currently coordinating a massive, publicly-funded program to address the worst impacts of this infestation; however, reducing nutrient levels in the Laguna is critical for long-term *Ludwigia* control. For these reasons we request that the State Water Resources Control Board maintain the current 303(d) listing for nitrogen and phosphorus impairment in the Laguna de Santa Rosa, and expedite the Laguna's scheduled TMDL process.

The scale of the *Ludwigia* problem is immense, and has raised great public attention due to concerns over mosquito control and environmental impacts to this sensitive wildlife area, the largest tributary to the Russian River. In October 2004, the multi-agency *Ludwigia* Task Force developed a two-phase control plan (please see attached) combining an aggressive, short-term treatment program with a long-term program of research and restoration to make the Laguna more resistant to aquatic weeds. In July and August 2005, more than 100 acres of channel and floodplain were treated with herbicides, and 4500 tons of plant materials were harvested and removed from the system. In the past year, more than $1.5 million dollars in local, state and federal funds have been allocated to *Ludwigia* control and research, and more than $900,000 dollars have been expended in 2005 alone. Since 2003, the Santa Rosa Press Democrat, and the Sonoma West Times and News have published more than 75 newspaper articles, editorials and letters to the editor on *Ludwigia* issues (please find list of articles and several examples, attached). Given the magnitude of *Ludwigia's* impacts, control costs, and public concerns, *Ludwigia* is arguably the worst environmental nuisance in Sonoma County.

Researchers at the USDA and at Sonoma State University are currently seeking to quantify the relationship between *Ludwigia* growth and environmental conditions. Biologists working on this system consider it unlikely that growth of the observed rate and magnitude would be possible without the biostimulatory effects of excessive nitrogen and phosphorus levels found in the

Laguna. Recognizing the critical importance of nutrient reduction for long-term *Ludwigia* control, in February 2005, the *Ludwigia* Task Force formally requested that the North Coast Regional Water Quality Control Board expedite a TMDL pollution control plan for nutrient and sediment impairments in the Laguna (please find attached). The TMDL process provides an unbiased assessment of pollution in the watershed; and leads to the development of science-based regulations, land management and policy recommendations to restore water quality.

There is a long history of contention and finger-pointing over water quality impairments in the Laguna, and wide recognition that excess nutrients pose a great challenge for Laguna restoration. Without an official, comprehensive, and even-handed water quality analysis such as a TMDL, it will be difficult to move beyond acrimony, to identify the most important sources of impairments, and find practical solutions. Maintaining the 303(d) listing of nitrogen and phosphorus will permit this essential data-gathering effort to proceed as scheduled. We believe that removing the listing will undermine long-term *Ludwigia* control efforts, and lead to further environmental degradation, health risks, and public expense. For all these reasons, we respectfully urge the State Water Resources Control Board to maintain the Laguna's current regulatory status, based on the narrative standard of the Basin Plan.

Yours truly,

Dan Schurman
Executive Director, Laguna Foundation

Anna Warwick Sears 12/1/05
Anna Warwick Sears, Ph.D.
Research Director, Laguna Foundation

12/1/05
Julian Meisler
Ludwigia Control Project Manager, Laguna Foundation

CC: Catherine Kuhlman, Executive Officer, North Coast Regional Water Quality Control Board, 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403

Attached Documents:

1. *Ludwigia* Task Force letter of recommendation for *Ludwigia* control to the Sonoma County Board of Supervisors and the California Department of Fish and Game. October 28, 2004.

2. *Ludwigia* Task Force letter urging North Coast Regional Water Quality Control Board to expedite their nutrient TMDL, to aid in long-term *Ludwigia* control. The attached document is a copy of the letter as received by the Regional Board.

3. List of Press Coverage of invasive *Ludwigia* in the Laguna: 2003-2005.

4. Examples of Press Coverage:

Santa Rosa Press Democrat. Water Weed Spreads Through County. (9/17/04). The photo on this front page article was later chosen as one of the images of year for Sonoma County.

Santa Rosa Press Democrat. Herbicide first step to eradicate *Ludwigia*. (3/14/05).

Santa Rosa Press Democrat. Neighborhoods may be sprayed to kill mosquitoes. (5/13/05).

Sonoma West Times & News. Mosquito abatement hoped to slow West Nile virus. (7/29/04).

The Press DEMOCRAT

FRIDAY, SEPTEMBER 17, 2004 • SANTA ROSA, CALIFORNIA

Water weed spreads in county

Officials urgently seeking ways to control Ludwigia in Russian River, laguna

By CAROL BENFELL
THE PRESS DEMOCRAT

Sonoma County officials are urgently seeking a way to control a fast-growing water weed that is choking the Laguna de Santa Rosa and has spread to the Russian River.

The worst infestations of Ludwigia are in the laguna near Sebastopol and in flood-control channels in Rohnert Park, where the weed now sprouts five feet above the water.

The plant smothers native plants and makes it harder for waterfowl to land on the water surface and find food. It decays in the water, depleting oxygen and killing fish.

Now research shows the weed is changing the waterways in which it lives, creating an environment favorable to the specific kinds of mosquitoes that carry West Nile virus, which can sicken or kill birds, horses and people.

Researchers think Ludwigia entered the laguna when someone dumped an aquarium containing the plant.

West county Supervisor Mike Reilly last week called on the government agencies with control of the laguna to step up their research on ways to reduce the threat to human health.

"It only makes sense from a public health standpoint to be proactive about this," he said. "We're seeing West Nile in birds, we're seeing it in horses, and I think it's just a matter of time" until it appears in people.

He said he has asked the Laguna Task Force, a coalition of government agencies with responsibility for the laguna, to give him a plan and options for Ludwigia control by Oct. 20.

But bringing Ludwigia under control is not going to be easy, researchers say. The plant reproduces from every broken-off section of root, leaf or stem and produces hundreds of seeds as well.

"This thing is a real menace," said Donald Strong, who specializes in the study of invasive aquatic plants at UC Davis. "With enough money and enough attention, you could probably eradicate it — I guess."

Ludwigia is a problem because it forms dense mats and towering columns that protect juvenile mosquitoes from natural predators. It interferes with the mosquito control district's efforts to disburse mosquito lar-

TURN TO LUDWIGIA, PAGE A11

Photos by KENT PORTER / The Press Democrat

Invasive species ecologist Anna Sears gets a close-up view of the Ludwigia water weed choking the Rohnert Park Flood Control canal Wednesday near the Rohnert Park Expressway.

LUDWIGIA HEXAPETALA FACTS

- A fast-growing water weed, Ludwigia hexapetala has bright yellow flowers and willow like leaves that shield mosquito larvae and eggs from sprays and predators.
- It lives in direct sunlight, in shallow, nutrient-rich water, and is an indicator of how much the Laguna de Santa Rosa has become degraded in recent years.
- Domestic forms of Ludwigia have been seen along the edge of the laguna since the 1930s, but it does not form the dense mats typical of hexapetala.

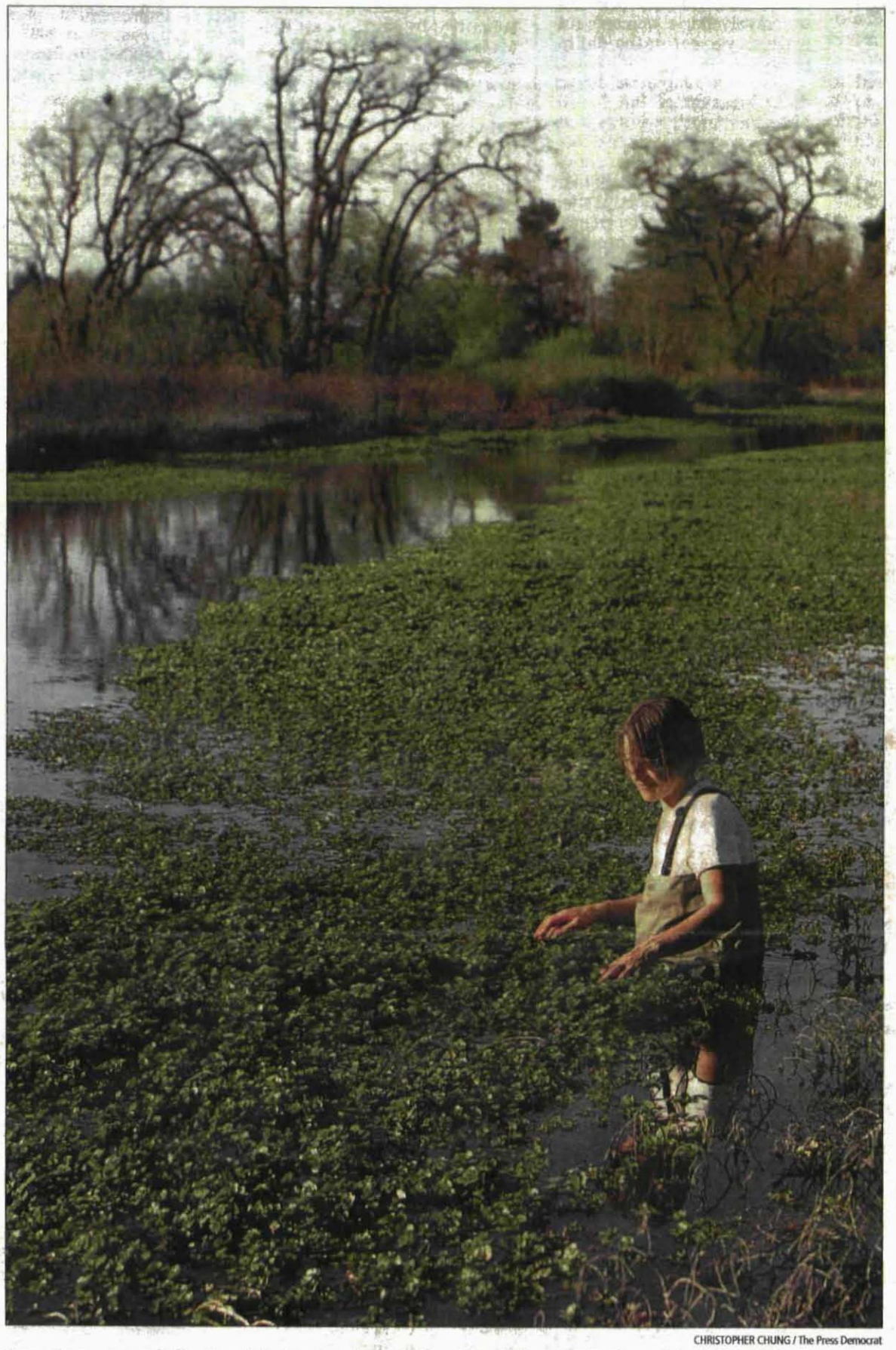
With a yellow flower and bright green tendrils, Ludwigia, an import from South America, can grow up to 5 feet high.

INSIDE

HISTORIC HOMER AT HOME?
Barry Bonds returns to San Francisco needing just one more home run for 700 in his career; Giants finish sweep in Milwaukee. **C1**

Empire News

LAGUNA DE SANTA ROSA



CHRISTOPHER CHUNG / The Press Democrat

Anna Sears, research director of the Laguna de Santa Rosa Foundation, wades through Ludwigia in the Laguna de Santa Rosa channel north of Occidental Road.

Herbicide first step to eradicate Ludwigia

$1.4 million Laguna plan calls for spraying, then hand pulling, goat grazing

By CAROL BENFELL
THE PRESS DEMOCRAT

A five-year project to beat back a fast-growing water weed is expected to begin July 1 on part of the Laguna de Santa Rosa and Rohnert Park flood control channels.

The $1.4 million removal plan calls for targeted herbicide spraying of the Ludwigia weed and then tractor removal of the tons of dead plant mass each year for three years.

Then, if all goes well, other management techniques, such as hand pulling and goat grazing, would be tried. Native plants, which have been swath-

"The fundamental concept is for spraying and removal for the first three years, then moving toward no-spray, more holistic control measures," Sears said.

If the North Coast Regional Water Quality Control Board approves the plan, it will mark the first time herbicides have been used to attack the plant pest, which has been building up in the Laguna for about a decade.

Ludwigia hexapetala, a nonnative plant also known as water primrose, carpets some areas of the Laguna and the channels from bank to bank and rises as much as eight feet above the water surface.

Its dense growth provides a safe haven for mosquitoes, which can carry West Nile virus. The virus can sicken and kill birds, humans and horses.

Environmental groups are

The Press Democrat

"There is a potential for this to get so bad that spraying

Neighborhoods may be sprayed to kill mosquitos, officials say

Agencies want to use herbicides to eradicate Ludwigia at Laguna

By CAROL BENFELL
THE PRESS DEMOCRAT

Trucks may be rumbling through neighborhoods spraying insecticides by the end of the year if something isn't done to control a Laguna-choking waterweed, mosquito control district officials said Thursday.

Ludwigia, a weed that has covered more than 155 acres of the Laguna de Santa Rosa, is becoming so thick that neither mosquito larvae-killing pellets nor mosquito fish can get to the mosquitoes to kill them, said Jim Wanderscheid, manager of the Marin/Sonoma Mosquito & Vector Control District.

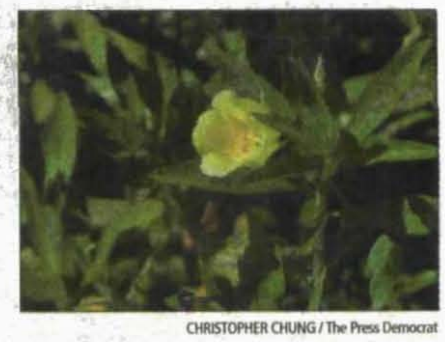
Even more worrisome, West Nile virus-carrying mosquitoes are already showing up in the district's sampling traps, Wanderscheid said.

"If something isn't done with the Ludwigia, if our larvaciding program won't be effective, if the mosquito fish can't get through, we will be driving down the streets in trucks. It's our only alternative," Wanderscheid said.

If that happens, the trucks would use an insecticide spray containing pyrethrins, a chemical derived from chrysanthemums and a common ingredient in flea collars.

"This is a purely preventable vi-

TURN TO LUDWIGIA, PAGE B3



CHRISTOPHER CHUNG / The Press Democrat

WHAT IT MEANS

Ludwigia The waterweed has covered more than 155 acres of the Laguna de Santa Rosa and is so thick that it is endangering the effectiveness of mosquito-control methods.

West Nile virus Some mosquitoes caught recently in sampling traps put out by the Marin/Sonoma Mosquito & Vector Control District were found to carry the virus.

Insecticides If something isn't done to control the plants' spread, officials want to use a spray containing pyrethrins to kill the mosquitos. A herbicide also may be used.

KENT PORTER / The Press Democrat

The Laguna de Santa Rosa, including this area south of Occidental Road and north of Sebastopol, is threatened by the waterweed Ludwigia. A water board meeting Thursday focused on ways to curb the weed's growth and eradicate virus-carrying mosquitoes it harbors.

LUDWIGIA: Weed mass doubling in size every 15 to 90 days

CONTINUED FROM PAGE B1

rus," Wanderscheid said. "We know the cause and we know we can knock down the mosquito population so the virus won't be reproducing. As long as we can prevent illness, we're going to try to prevent it."

The warning came at a public meeting at the North Coast Regional Water Quality Control Board, where water board staff members will soon make a decision on how to control the Ludwigia.

The meeting was called to discuss a different kind of spraying — to eradicate the weed, not the mosquito.

Two agencies, the Sonoma County Water Agency and the state Department of Fish and Game, which manage different parts of the Laguna, are asking the water board for a permit to spray an herbicide on their areas this summer to kill the waterweed.

But many of the 40 people attending the meeting spoke in opposition to the use of herbicides on the Laguna.

The herbicide proposed is glyphosate, an ingredient in RoundUp and Rodeo.

The eradication proposal is part of a five-year plan by the Laguna Foundation, an environmental nonprofit.

The foundation wants to get the Ludwigia under control in the next three years, then plant trees, restore native plants and remove sediment from the long-neglected Laguna, the largest wetland on the North Coast.

The foundation wants to act now because the plant's rapid growth is destroying the Laguna's ecosystem and threatens the Russian River as well.

Last year, Ludwigia had reached a mass of 10,000 tons and is currently doubling in size every 15 to 90 days, said Anna Sears, the Laguna Foundation's research director.

The plant removes the dissolved oxygen in water needed by fish, blocks the natural circulation of the water and suffocates native plant species.

But some speakers Thursday said they were more concerned about the weedkiller glyphosate than the risk of West Nile disease.

Armed with information from the Internet, they said the chemical could travel through the ground water to contaminate wells and cause a variety of cancers.

Most scientists, however, regard glyphosate as one of the least toxic herbicides. Animal studies show it isn't a carcinogen, according to the state Department of Pesticide Regulation.

Other speakers suggested the concern over West Nile virus might be overstated. They said there was ample time to restore the ecosystem and let the Ludwigia recede to a normal level, even though that process might take many years.

"This is an opportunity to restore and renew the Laguna by employing innovative ideas . . . using mushrooms for cleansing wastewater and planting trees for riparian zones," said Magick Altman, a Sebastopol activist and the coordinator of Laguna Lovers, an anti-spraying group.

"I would hate to see anyone get sick from West Nile," Altman said. "But there were only 3,587 illnesses and 211 deaths in the U.S. in the last three years. That's one death in 4 million. It's the bogeyman in the middle of the room."

Figures from the federal Centers for Disease Control show a total for 2003 and 2004 of 12,332 West Nile illnesses and 352 deaths nationwide.

Leigh Hall, the county's deputy public health officer, said 20 percent of those bitten by West Nile-infected mosquitoes will become ill — many with severe flu-like symptoms that persist for weeks.

About one in 150 will die or fall victim to a persistent polio-like disease, encephalitis or meningitis. "It's a significant health threat," Hall said.

You can reach Staff Writer Carol Benfell at 521-5259 or cbenfell@pressdemocrat.com.

SONOMA WEST
TIMES & NEWS

© 113 YEARS • SINCE 1889 • VOL. 116 No. 40 July 29-August 4, 2004 50 CENTS SEBASTOPOL, CA.

Mosquito abatement hoped to slow West Nile virus

• Deadly virus found in Ukiah, but Laguna mosquitoes are under control

by Dawn Pillsbury
Sonoma West Staff Writer

SEBASTOPOL — The West Nile virus may be coming to Sonoma County soon, but mosquito abatement officials are doing their best to keep it from being spread via mosquitoes in the Laguna de Santa Rosa.

Jim Wanderscheid, manager of the Sonoma Marin Mosquito and Vector Control District said the district staff's efforts to control the Laguna mosquito population have been successful.

"We're treating it every day," said Wanderscheid.

West Nile, virus, a mosquito-borne disease that can cause encephalitis in humans, has been found in birds in Southern California and recently in Ukiah, according to the U.S. Center for Disease Control.

"West Nile is on its way," he said. "We've been gearing up for this for two to three years," he said. He said he was somewhat surprised at the Ukiah case.

"I felt it would be here in August or September," he said.

Because of the infestation in the Laguna of the water primrose, Ludwigia, the district's conventional treatment for mosquito control — mosquito fish — have not been working because the fish cannot reach the mosquito larvae to eat them. That sent mosquito populations around the Laguna soaring last year.

"Now we're using Bti (a mixture of soil bacteria and ground corn cobs)," Wanderscheid said. "It gives

(See *West Nile* page A12)

Photo provided by the Laguna Foundation

LAGUNA LADY — Laguna Foundation research director Anna Sears stands holding a crayfish in a field of Ludwigia, the invasive water weed that has provided a safe haven for mosquitoes on the Laguna. The foundation is sponsoring studies on how to manage the weed.

Health of the Laguna has to improve – or else

by Corey Young
Sonoma West Staff Writer

SEBASTOPOL — If th health of the Laguna d Santa Rosa isn't improve and the growth of the inva sive Ludwigia plant stoppe it could lead to an outbreak West Nile virus, Lagun advocates said last month.

"It's going to get here there's no doubt about it, said Dan Schurman, execu tive director of the non-profi Laguna de Santa Ros Foundation."Whether it wi be a human outbreak or no we don't know."

West Nile virus is carrie by birds that have bee

(See *Laguna* page A9)

West Nile...

(Continued from front page)

21 days of treatment."

To get the larvicide through the mat of Ludwigia that covers the Laguna in many places, the Bti is sprayed from a helicopter.

"Then we use the rotor wash from the helicopter" to push the granules into the water, where it can kill the mosquito larvae, he said.

He said there are no side-effects associated with the treatment and it has been effective.

"We've been down on the Laguna trapping mosquitoes and there were no adults," he said. "We have a handle on it."

Anna Sears, research director for the Laguna Foundation, who with Sonoma State graduate student Lily Verdone has been doing research on managing Ludwigia, said she has noticed a drop in the mosquito population.

"I haven't seen any, actually," said Sears, who spends many hours on the Laguna preparing experiments in eliminating the water weed. "The ticks are more noticeable. The field biologists around here are more concerned about Lyme's Disease (caused by bacteria spread by deer ticks) than West Nile."

Sears said that while she and Verdone are still planning the experiments in tarping, manual removal and grazing with goats to eliminate Ludwigia, she thinks taking the weed out of its comfortable depth has the the most encouraging results.

Because the weed only grows in shallow water, if work on the Laguna restores its historic profiles with high hummocks and deep channels and lakes, habitat for Ludwigia and other invasive weeds will be eliminated, she said.

"We need to find a long-term solution, not one that will leave the area open for another infestation," she said.

Wanderscheid said the best thing to do about West Nile, which can cause flu-like symptoms in people bitten by infected mosquitoes, is eliminate standing wate

"Dump, drain and flip," said, saying that is the p cedure for dealing with c tainers that contain wa that can be breedi grounds for mosquitoes.

He encouraged We County residents to call t district if they find sources stagnant water at 285-220

He said wearing lo sleeves and pants and ins repellent while outdoors c also help avoid bites.

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(Continued from front page)

infected by mosquitos, which thrive in the Ludwigia plant that covers areas of the Laguna channel from Occidental Road to Rohnert Park.

"It's a very, very difficult plant to get rid of because it grows so densely and pervasively," said Schurman. In some areas, Ludwigia is growing five feet above the surface of the water, and its root mass is so thick that tiny mosquito fish can't get through to eat the mosquito larva.

"So now we've set up a perfect, ideal breeding ground for mosquitos, which is bad enough, but with the introduction of West Nile virus — and some of these mosquitos that breed in the Laguna are vectors for West Nile virus — we have a public health concern," said Schurman. "We have to deal with this situation. We can't just say, 'Oh, it's a pesky plant,' because it could potentially mosquito control district officials will probably have to spray pesticides in the Laguna, said Schurman.

"It's going to be very costly," he said of potential solutions to the Ludwigia problem. "It's not the kid of thing where can can just have an army of volunteers go out and start pulling, because it is so immense that it would take thousands and thousands of volunteers to do anything about it."

Schurman spoke on the Ludwigia concerns as part of an overview of Laguna de Santa Rosa issues at the June 10 Sebastopol Area Chamber of Commerce's monthly "Out of the Box" speaker series.

He and Laguna Foundation Boardmember Virginia Strom-Martin met with a group of more than 20 guests over a seafood lunch to discuss what exactly the Laguna is and how the group is trying to preserve and restore it.

What is the Laguna?

"Even people who've lived here a long, long time don't really understand what the seasonal wetlands, vernal pools and the channel itself on the plain between Santa Rosa and Sebastopol, said Schurman. Water flows into the Laguna channel to be carried out the the River and then the ocean.

"The whole function of the Laguna is to hold, pond and slow down all that water," said Schurman. "If that water were allowed to go into the River without this slowing and ponding, flood events in the lower River would be much, much worse — hydrologists estimate as much as 15 feet higher without the Laguna."

Laguna history

"It's the most biologically diverse region in all of Sonoma County," said Schurman. "Because of that, it was also an attraction for human settlement here. Before the arrival of Europeans, this area was the third-most densely populated region in the entire North American continent because it was so abundant as a food source."

Native Americans lived in 19th century and the early 20th century," he said. "People came up from the Bay Area, they took the train up, and there were resorts all along the western bank of the Laguna. There was boating and fishing, and there are some great historical photographs of women in their big parasol hats out in the canoes. It was quite a destination."

The lakes have since been drained and converted to agricultural land, the dams brought down with dynamite, said Schurman.

"What we've done in the last 150 years is change the Laguna rather drastically: draining the lakes, creating channels in some of the creeks in the name of flood control," said Schurman. "Over time, some of the things we've done have harmed the Laguna, and now we're starting to realize what those harmful effects were and we're starting to experience them."

Sedimentation problem

"More and more sediment from all the activity up in the hills, all the activity in the mentation."

The Sonoma County Water Agency and the Army Corps of Engineers are spending millions to come up with an answer to the sedimentation problem, and moving closer to announcing possible solutions, said Schurman.

On the bright side, the sedimentation study could lead to some large restoration projects by the Corps, said Schurman.

"We're hoping that they will identify this area as a prime project area," he said.

The Laguna Foundation

"The work that we do is mostly in three areas: preservation, restoration and education," said Schurman.

The foundation works with landowners, public agencies and conservation groups to permanently protect natural resources in the Laguna, he said.

Their restoration efforts have included native plantings of trees and shrubs. They have also opened up areas of the Laguna for access by the public and hope to eventually create a trail system that will

"Everything we do is lea ing toward that," sa Schurman. "That's what w want to create in the Lagu preserve."

Strom-Martin, the form assemblywoman, said sh became involved with th foundation largely because the education program, whi trains dozens of docents ea year to teach the public abo the Laguna.

"This year, for the fir time, there will be opportun ties for the general public have docent-led hikes," sa Strom-Martin. "What we rea ly want to do is educate th community more and mo about this little hidden ge we have called the Laguna."

The area is also a potenti eco-tourism attraction f bird-watchers and oth nature lovers, she said.

"The Laguna is part of th Pacific flyway, which do attract migratory birds, an we have more than 20 species of birds living right the Laguna," said Stron Martin.

There are several oth north coast areas that draw