Policy Brief

Save Cabbage Palms: Stop Lethal Bronzing Disease (LBD)

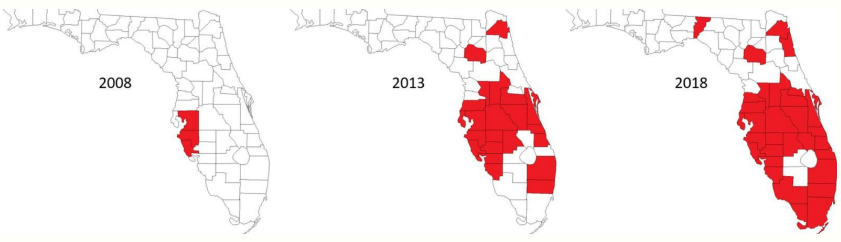
Healthy Cabbage Palm (*Sabal palmetto*)

Cabbage Palm afflicted with Lethal Bronzing Disease; lower fronds dead

Context

Cabbage palm (*Sabal palmetto*), the dominant species across many wild and domesticated landscapes on the southeastern coastal plain and the state tree of both Florida and South Carolina, is threatened by an introduced pathogen (16 SrIV-D phytoplasma) transmitted by a native insect (*Haplaxius crudus*). Larvae of this plant hopper thrive in turfgrass thatch.

Lethal Bronzing Disease (LBD) was first observed on cultivated date palms (*Phoenix* spp.) but soon jumped to cabbage palm and at least 16 other species. Now its spread in Florida is rapid and unchecked. When the insect vector sucks palm sap it transmits the pathogen, which multiplies and blocks the vascular system and causes palm death. Dead trees are an eyesore but are no longer a source of infection. LBD infections are indicated by leaf bronzing, inflorescence yellowing, and pre-mature fruit drop.



Historical and current distribution of LBD in the state of Florida.
Credit: Brian Bahder, UF/IFAS

MAIN FINDINGS

1. Long-distance movement of LBD is through unregulated commercial transport of infected palms.
2. LBD infections are diagnosed with quantitative PCR tests of trunk tissue samples for about $75 per sample.
3. The loss of cabbage palm would be ecologically and economically devastating.
4. Repeated antibiotic treatment of infected palms is expensive and only delays death while preserving a continuing source of LBD infection.

KEY POLICY RECOMMENDATIONS

1. Increase funding for testing and development of new diagnostic tools.
2. Ban sale of LBD-susceptible palms until control measures are in place.
3. Require testing in nurseries with LBD-susceptible palms.
4. Require phytosanitary certification prior to palm transport across county and state boundaries.
5. Increase funding for research on LBD epidemiology and on control measures.
6. Launch a public awareness campaign on LBD's symptoms and the consequences of its unchecked spread.
7. Insure that infected palms are rapidly removed.
8. Create a funding source to assist landowners in removal of infected palms.

Herman Herzog, "Forest with Heron," 1900.

Cultural Significance of Cabbage Palms

The cabbage palm, or "tree of life" of the Seminole and Miccosukee Native Americans, shapes the ecological and aesthetic landscapes of Florida. These trees contribute substantially to Florida's identity and are perceptible markers of people's connection to a place.

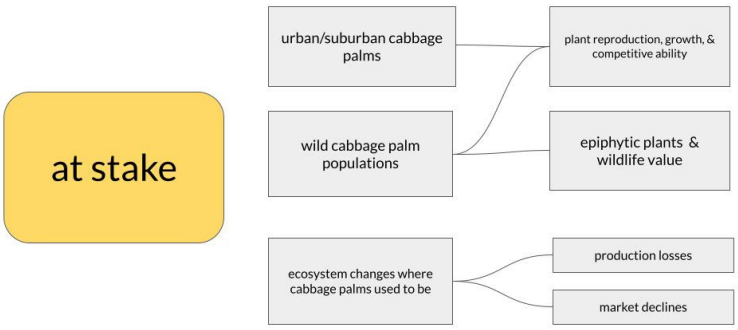
There are many ways to measure the value of cabbage palms to the people who live within its range and to the millions who visit annually. The cabbage palms that historically provided food, shelter, and medicine to indigenous people and colonists are now emblematic of Florida. For example, cabbage palms are featured in about half of the Florida landscape paintings in the Vickers Collection (recently presented to the Harn Museum at the University of Florida) and on display in the Cici and Hyatt Brown Museum of Art in Daytona. Cabbage palms are also extremely common along rights-of-way throughout Florida and contribute substantially to the state's urban forests.

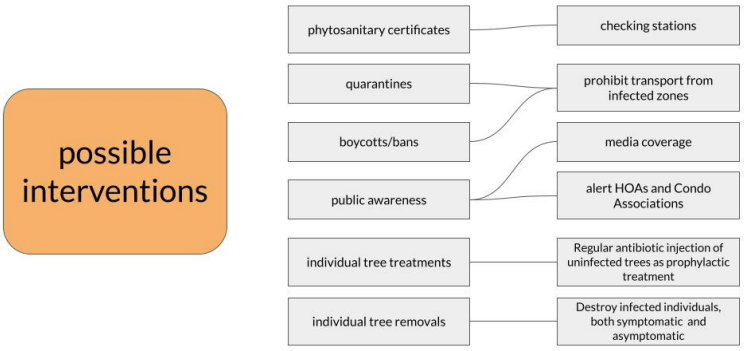
Ecological Significance

Cabbage palms have great ecological value and are vital for biodiversity conservation in Florida. Its fronds provide habitat for tree frogs and bats, palm boots support golden polypody and shoestring ferns, palm flowers feed bees and butterflies, and its fruits are important food for birds and mammals, from racoons to bears. If all the cabbage palms in Florida were to die, in addition to losing their free local air conditioning service, more than a million metric tons of carbon dioxide would be emitted to the atmosphere, thereby contributing substantially to global climate change.

Golden polypody and shoestring ferns growing from cabbage palm leaf boots

Credit: Brian Bahder, UF/IFAS





Economic Consequences of LBD and Costs of Controlling its Spread

- The qPCR diagnostic test for LBD costs about $75 and you can download the submission form and instructions for collecting a sample here. Palms that test positive for the phytoplasma should be removed to prevent further spread.
- It costs about $200/tree to have a palm removed. If only palms on government-owned rights-of-way were to be removed from urban and suburban areas in Florida, the total cost to taxpayers would be in the hundreds of millions of dollars.
- Phytosanitary certification that nursery-grown palms and palms transplanted from the wild are LBD-free would require action by the USDA's Animal and Plant Health and Inspection Service (APHIS) and the Florida Department of Agriculture's Division of Plant Industry (FDACS DPI), with cooperation of the Florida Nursery, Growers & Landscape association.
- Research is needed on how to prevent the spread of *Haplaxius crudus* nymphs.

Left, Necrotic inflorescence from Coconut Palm (*Cocos nucifera*), and right, collapsed spear leaf from the same species.

Credit: Brian Bahder, UF/IFAS

Symptom progression of LBD in a *Sabal palmetto* demonstrating discoloration of older leaves first, March 2018 (left); three months later younger leaves are affected and the spear leaf has collapsed (right).

Credit: Brian Bahder, UF/IFAS

WHAT YOU CAN DO NOW

- Refuse to purchase palms unless the vendor can certify them as free of Lethal Bronzing Disease (LBD). Note that infected and infectious plants are often asymptomatic.

- When you suspect a palm is infected, contact your local UF/IFAS Extension agent and if an infection is confirmed make sure that the infected palm is speedily removed.

- Help raise public awareness about the threat of LBD to our native cabbage palms and other commonly cultivated palms by sharing your concerns with friends, neighbors, and elected officials.

- **Pressure** the Florida Department of Agriculture, the USDA-APHIS, and the Florida Nursery, Growers & Landscape Association to be responsible and take action to control the spread of LBD.

REFERENCES

Bahder, B.W. and E.E. Helmick. 2019. Lethal Bronzing Disease (LBD). https://edis.ifas.ufl.edu/pdf/PP/PP16300.pdf

Bahder, B.W. et al. 2019. A survey of declining palms (Arecaceae) with 16SrIF-D phytoplasma to evaluate the distribution and host range in Florida. Plant Disease doi.org/10.1094/PDIS-03-19-0633-RE

Mouu, D.-F. et al. 2020. Effects of Lethal Bronzing Disease, palm height, and temperature on abundance and monitoring of Haplaxius crudus. Insects doi.org/10.3390/insects11110748