PEST ALERT

FDACS-P-01582
Pest Alert Updated June 2018

Florida Department of Agriculture and Consumer Services, Division of Plant Industry

Texas Phoenix Palm Decline (also referred to as lethal bronzing)

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INTRODUCTION: Texas Phoenix palm decline (TPPD), also referred to as lethal bronzing (Figs. 1-8), is a disease of palms that is caused by a phytoplasma (Harrison and Elliot 2009). The phytoplasma is in the taxonomic group of organisms that produce lethal yellows or palm decline in palms (16 Sr-IV group of phytoplasmas). This group of organisms is vast and varied in host range and vector associations. TPPD was noticed initially in Corpus Christi, Texas, in 2001 (Harrison *et al*. 2002) because decline symptoms were more common on *Phoenix* spp. than was expected for known U.S. phytoplasma diseases of palms. This disease now is known to cause decline in *Phoenix sylvestris*, *Phoenix dactylifera*, *Phoenix canariensis*, *Phoenix roebelenii* (Jeyaprakash *et al*. 2011), *Sabal palmetto* (Harrison and Elliot 2008; Harrison *et al*. 2009), *Syagrus romanzoffiana* (Harrison et al. 2008), *Bismarckia nobilis* (Dey et al, 2018 forthcoming), and *Livistona chinensis*. The entire host range of the pathogen is uncertain at this time. **Current FDACS-DPI confirmed distribution includes:** Alachua, Charlotte, Desoto, Duval, Hardee, Hernando, Highlands, Hillsborough, Indian River, Lake, Manatee, Orange, Osceola, Polk, Sarasota, Sumter, St. Lucie and Volusia counties. Additional information from the University of Florida indicates possible positive finds in Bay, Broward, Collier, Desoto, Lee, Levy, Miami-Dade, Palm Beach, and Seminole counties.

Figure 1. Sabal palm decline. Photography credit: Susan Halbert, FDACS-DPI.

Figure 2. Sabal palm decline. Note the red color on dying leaves. Photography credit: Susan Halbert, FDACS-DPI.

Figure 3. Sabal palms in various stages of decline. Photography credit: Susan Halbert, FDACS-DPI.

Figure 4. Sabal palm in decline shows death in spear leaf. Photography credit: Susan Halbert, FDACS-DPI.

Figure 5. Dying *Phoenix sylvestris*. Note that the spear leaf has died. This indicates that the apical meristem is dead. Photography credit: Monica Elliott, University of Florida, IFAS, Ft. Lauderdale.

Figure 6. *Phoenix sylvestris* with Texas Phoenix palm decline. Note the dead spear leaf. Photography credit: Monica Elliott, University of Florida, IFAS, Ft. Lauderdale.

Figure 7. Subtle early symptoms of Texas Phoenix palm decline in a nursery setting. Photography credit: Monica Elliott, University of Florida, IFAS, Ft. Lauderdale.

Figure 8. Texas Phoenix palm decline in *Bismarckia nobilis*. Photography credit: Brent Gaffney, owner of Oasis Landscape Services, Inc.

DESCRIPTION: The earliest symptom is a discoloration of the lower (oldest) leaves of the palms (Fig. 7). Discoloration begins at the tips of the leaflets. Subsequently, reproductive parts of the plant (if present) will die, resulting in dropping of fruits and flowers. In Phoenix palms, the spear leaf dies after approximately ¼ to ⅓ of the lower canopy has turned brown (Figs. 5, 6). In cabbage palms (*Sabal palmetto*), this may not occur. The disease can be difficult to recognize in the field, because nutritional problems (potassium deficiency, for example) and certain fungal diseases can look similar to the effects of the phytoplasma infection. If it is not the season for fruits and flowers, the diagnostic characteristics involving those parts cannot be used. In taller Phoenix palms, it can be difficult to impossible to see the spear leaf. Typically, infected cabbage palms will have at least the bottom ⅓ of the canopy dead and bronzed brown, and a much paler dead spear leaf (Fig. 1). A ring of leaves surrounding the spear leaf typically remains green for some time after the spear leaf dies (Fig. 4). Eventually, all the leaves collapse and fall, leaving the stem erect (Fig. 3).

TRANSMISSION: The disease is thought to be transmitted by an insect vector, probably a planthopper (superfamily Fulgoroidea). The species is not known, but there are three species that are found routinely on palms in the areas where the disease is spreading (Halbert *et al*. 2014). One is a large flatid planthopper, *Ormenaria rufifascia* (Walker) (Fig. 9); another is a cixiid planthopper, *Haplaxius crudus* (Van Duzee) [formerly *Myndous crudus* Van Duzee] (Fig. 10); and the third one is a derbid planthopper, *Omolicna joi* Wilson *et al*. (Fig. 11).

Figure 9. Flatid planthoppers, *Ormenaria rufifascia* on *Sabal palmetto* in Florida. Photography credit: Susan Halbert, FDACS-DPI.

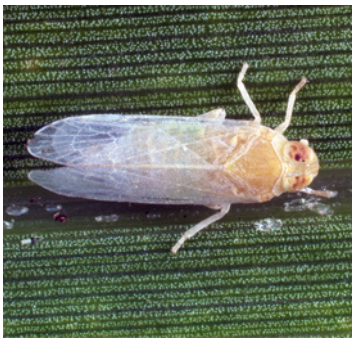

Figure 10. Cixiid planthopper on palms, *Haplaxiux crudus,* in Florida. Photography credit: David C. Ziesk.

Figure 11. Derbid planthopper, *Omolicna joi*, on palms in Florida. Photography credit: Lyle J. Buss, University of Florida.

The cixiid is the known vector of lethal yellows in South Florida (Howard *et al*. 1983). It occurs throughout the Florida peninsula as far north as Gainesville and can be found during most of the year, but especially in the winter (Fig. 12) (Halbert *et al*. 2014). The derbid is known from all of Florida, but is most common north of Broward and Collier counties. Flight activity is in the fall. The flatid is known from all of the Florida peninsula and is most abundant in the late spring.

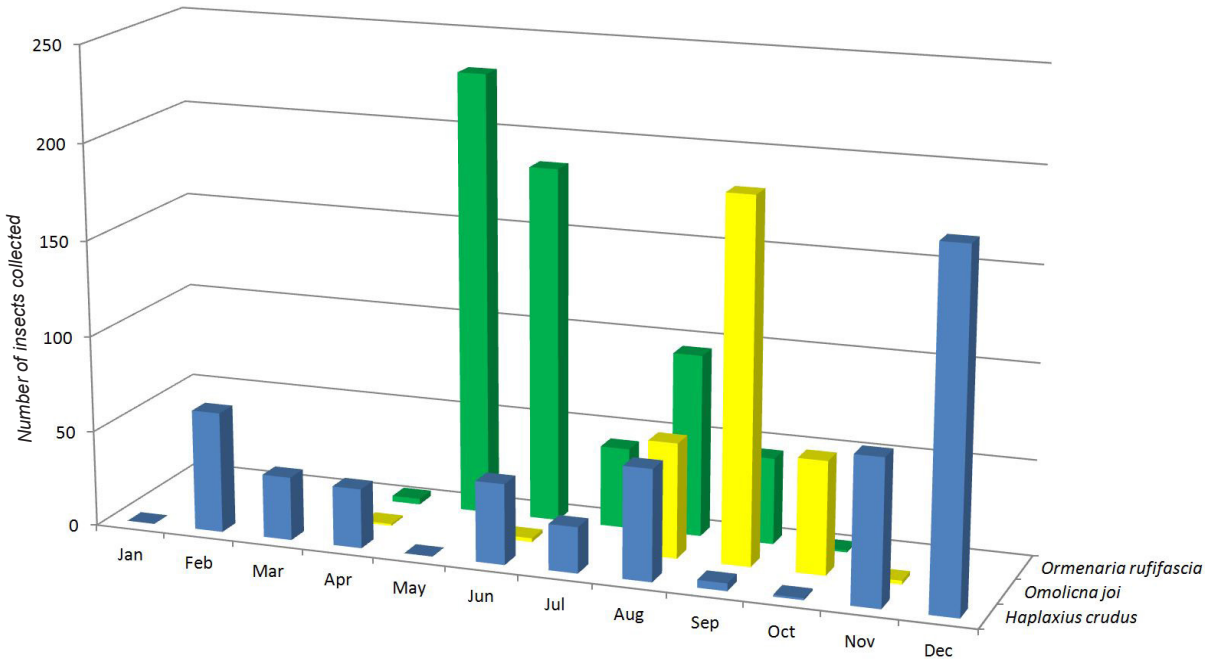

Figure 12. (Right) Seasonal flight activity of three planthopper species on Florida palms.

REPORTING AND SAMPLING: Homeowners who suspect TPPD should contact their local IFAS County Extension Office. Telephone numbers and addresses can be found at the following website: http://solutionsforyourlife.ufl.edu/map/index.html. Samples can be sent to the Fort Lauderdale Research and Education Center. Information on sampling protocol and applicable fees can be found here: http://flrec.ifas.ufl.edu/media/flrecifasufledu/pdfs/LY-TPPD-Trunk-Sampling.pdf

HOSTS: *Phoenix sylvestris, Phoenix canariensis, Phoenix dactylifera, Phoenix roebelenii, Syagrus romanozoffiana, Sabal palmetto, Bismarckia nobilis* and *Livistona chinensis*.

DISTRIBUTION: Texas and Florida, USA.

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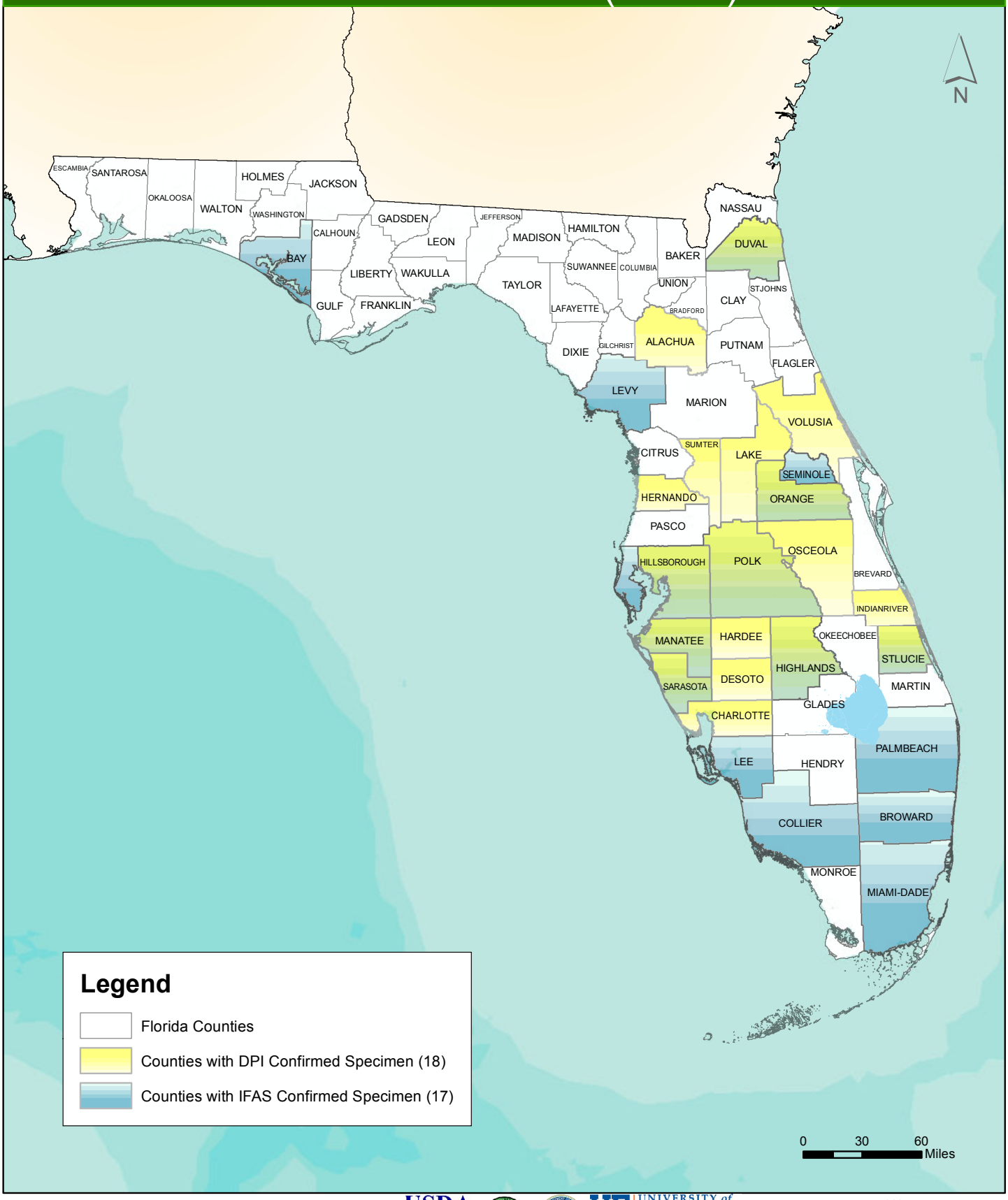
Texas Phoenix Palm Decline(TPPD) in Florida



FDACS, DPI, CAPS
G. Gardner, L. Whilby
Map for illustrative purposes only

USDA CAPS UF UNIVERSITY of FLORIDA IFAS

GCS North American 1983
PCS Albers Equal Area Conic
Data Source: CAPS
Date: 5/22/2018