



Bismarck Palms Failing in Southwest Florida

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Growing up to 50 ft tall, the magnificent palm known as the Bismarck palm, *Bismarckia nobilis* (Hildebrand. & H. Wendl.), has become a popular and successful landscape palm throughout Southwest Florida. Planted as an accent specimen in many landscapes, beautiful silver-blue Bismarck palms have towered over other plantings to the pride of homeowners. However, over the past several years, there has been an increasing amount of Bismarck palms suddenly failing. All of these deaths have been observed in large mature Bismarck palms in the landscape for at least 10 to 12 years and associated with infestations of palmetto weevils, *Rhynchophorus cruentatus* (Fabricius). Speculations on why these failures occurred have included cryptic cold damage related to several years of below normal winter temperatures, possible nutrient deficiencies or other unknown factors that predisposed these palms to attack by opportunistic palmetto weevils. A brief observational study of some of these failures, both in Charlotte County and in surrounding counties, provided an overview of possible factors and variables that attributed to an abnormally significant rash of Bismarck palm deaths.

Originally from the island nation of Madagascar, the Bismarck palm, *Bismarckia nobilis* (Hildebrand. & H. Wendl.), has been a popular landscape subject in Southwest Florida for some time. Although potentially growing to enormous size of up to 60 ft tall and 20 ft wide, the Bismarck palm is widely sold in local garden centers and is often planted in small residential lots. The growth seen in these palms has been very rapid and the one situated at the East Port Demonstration Garden in Port Charlotte grew from a 5-gal 3-ft plant to well over 20 ft in about 6 years. Planted well out of its hardiness zone range of 10 to 11, Bismarck palms have been planted all the way north to Orlando. Some have visibly suffered from freezes the last few years, but seemed to recover during the summer. As other palms such as *Veitchia merrillii* and *Wodyetia bifurcate* were killed off or severely damaged from 2009 to 2011, Bismarcks seemed very resilient and sustainable. However, the Charlotte County Extension Office began to receive calls from clients with failing Bismarcks beginning in 2009. Initially, the failures seemed explainable such as due to lightning strikes, but others were more cryptic and unexplained. Further investigation seemed to show evidence of stress due to cryptic cold damage leading to palmetto weevil invasion and eventual collapse of Bismarck specimens in the landscape for at least 10 to 12 years.

Discussion

In 2009, a Lee County Extension Horticulture Agent, Stephen Brown, brought this issue up in Dec. 2009 with his YouTube™ segment that showed his postmortem of a Bismarck palm done in by palmetto weevils. A few reports of Bismarck palms failing (5 total noted) in Charlotte County followed in Oct. 2009, but were chalked up to lightning strikes due to the rapid failure of the palms. Bismarck palms, according to USDA hardiness zones maps, are listed for 10a through 11, which would translate to an



Fig. 1. Fatal results: An apparently cold-damaged Bismarck palm succumbs to palmetto weevil infestation.

average annual minimum temperature of 35–30 °F in 10a, 40–35 °F in 10b, and 40+ °F for zone 11. An examination of the local Florida Automated Weather Network (FAWN) weather station located in North Port indicated that average low temperatures were recorded for the following years and months: Jan. 2008, 30.87 °F; Jan. 2009, 27.55 °F; Jan. 2010, 27.32 °F; and Jan. 2011, 31.13 °F. Another 2010 example indicated that from 2 Jan. to 14 Jan., nighttime temperatures were in the 30s and as low as 23 °F. FAWN recorded a low of 23.91 °F at 60 cm on 11 Jan. All of these lows were below the normal hardiness zone recommendations. Other surrounding counties – Lee and Collier – were also experiencing similar problems. A quick survey of counties up through Pasco indicated only one noted case of Bismarck death and that was due to neglect and improper establishment. The cold injury experienced in Charlotte County apparently caused enough

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damage and stress for a combination of opportunistic organisms to take advantage of the weakened condition. At some point, palmetto weevils invaded the Bismarck palms and caused them to quickly fail and collapse. The weevil invasion was very cryptic without any obvious signs of frass until the palm crown popped off and collapsed. In association with the weevils, rots set in as well, which produced copious amounts of odorous liquid. All of the Bismarck palms that shared this fate seemed to be been in the landscape at least 10 years and in overall healthy condition. Most of the failed specimens were old enough to produce flowers and fruits. No very young Bismarck palms or mature specimens were observed to have suffered from this problem.

Conclusions

With a fairly warm season through the winter of 2011–2012, deaths of Bismarck palms due to cold injury should subside during the growing season. A personal communication from Dr. Tim Broschat indicated that the contributing factor was likely stress caused by cold damage and that not all Bismarck palms are equally cold hardy. He noted that Bismarck palms are not as durable as they look, being susceptible to weevil damage, possible nutritional problems as well as cold weather.

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