

Deciphering Nativity in the Botanical World

Editor's note: The following narrative was taken from a discussion among members of the Florida Keys Invasive Exotics Task Force (FKIETF) regarding a species suggested for placement on their invasive plant list. The discussion includes a detailed account of the methods and resources used in determining the native range (or nativity) of a plant species – a task clearly outside the realm of experience for non-botanists.

Dear FKIETF members,

I would recommend against adding *Pluchea carolinensis* to any exotic list. It has been somewhat common in the lower Florida Keys for more than 35 years. It appears rapidly and sometimes abundantly after land clearing or fire. It favors early successional and degraded habitat types adjacent to natural areas. It rarely persists for more than several years after the event that favored its establishment. In short, it behaves like a native, and the evidence to the contrary is slim...

As money becomes more short, it would benefit all involved to prioritize all action towards the true problem species. The situation has become more critical in recent years and it appears that in some areas the battle is being lost. This is a hard job that some of you do. The real bad species are the ones that grow fast and spread fast and need fast action if they can be stopped.

Thanks,
Robert Ehrig, ehriuanaxx@aol.com

From Keith A. Bradley
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Hello all,

I've been asked by a few people to weigh in on *Pluchea carolinensis*, so let me summarize the data to supplement the discussion on our web page on this species (<http://regionalconservation.org/ircs/database/database.asp>, click on Plants of South Florida and scroll down to *Pluchea carolinensis*) in which we state that it is probably introduced in southern Florida, but we note that there is disagreement on that.

Many books say this species is an introduced exotic (listed below from new to old):

- *Flora of North America* (2006)
- Nelson – *The Shrubs & Woody Vines of Florida* (1996)
- Cronquist – *Asteraceae* volume of the *Flora of the Southeastern United States* (1980)
- Ledin – *Compositae of Southern Florida* (1951)
- JK Small – *Manual of the Southeastern Flora* (1933)
- JK Small – *Flora of the Florida Keys* (1913)
- JK Small – *Flora of the Southeastern United States* (1903) – which is the first published record for Florida that we've seen.

In addition to books covering the flora, when we address nativity we should always look at any taxonomic monographs dealing with the species because authors of these treatments have taken the most detailed look at a species' global range, and have observed as many herbarium specimens as possible, including the oldest ones known.

This allows them to understand where a species originated and where it was moved. In this case we have Godfrey, R. K. (1952) *Pluchea*, section *Stylimnus*, in North America, *Journal of the Elisha Mitchell Scientific Society* 68:238-271, which includes a comprehensive treatment of all of our *Pluchea* species. In it he writes, "Introduced in Southern Florida and the Hawaiian Islands."

As we've pointed out, there are exceptions to the above:

Long & Lakela's *Flora of Tropical Florida* (1971) isn't specific (which generally indicates they thought it was native).

And most relevant to us in Florida would be all editions of Wunderlin & Hansen's *Guide to the Vascular Plants of Florida* (1998-2011), and their online Atlas of Florida Vascular Plants, which all say native [Note: this has since been changed to non-native as a result of these investigations]. I e-mailed Bruce Hansen about his thinking and his reply was:

"I did some checking and the clearest statement comes from Godfrey (*J. Elisha Mitchell Sci. Soc.* 68: 248. 1952), where he says "Mexico, Central America, northern South America, and from Bermuda and the Bahama Islands through the West Indies to Trinidad; introduced in Southern Florida and the Hawaiian Islands". Why he thinks it's native to the entire Caribbean basin but introduced in Florida is probably because the first report of it (that I can find) is in Small's 1903 Flora. Maybe we should change it on the Atlas and in the Flora to introduced, since our definition is "those that have become part of the Florida flora following the occupation by Europeans in the

early sixteenth century.” As always in these borderline cases, no one knows what’s native and what’s like us.”

When we address nativity we should also look at historical herbarium specimens. Unfortunately we haven’t really done that for this species. We can presume from the literature above that this was a late addition to our flora since Small (1903) was our first report. It was not, for instance, in any volume of Chapman’s *Flora of the Southern United States* (editions from 1860 to 1897), or Torrey & Gray’s *Flora of North America* (1840). Torrey and then Chapman were very careful in recording species being collected in the Florida Keys. Both had access to specimens of Rev. A. Bennett, the first notable collector in the Keys (1834-5), and both obtained specimens from and corresponded with the prolific lower Keys collector Dr. John Loomis Blodgett (1838-1853). Based on the literature it doesn’t look like either collected *Pluchea*. The earliest records from Florida seem to be from the very end of the 1890s. If someone really wanted to get into this they would need to inspect the collections at the New York Botanical Garden and at the Smithsonian, but I don’t think they’d find anything older than the 1890s, almost 80 years after Key West was settled.

So, the pattern seems to be a pretty late discovery in Florida, indicating a late arrival was most likely. It subsequently spread up the peninsula to central Florida. We’ll never know for sure, but the evidence points to this being an introduced species in the Florida Keys and the rest of Florida.

That leaves us with the question of what to do as managers. As with any species, we have to decide on whether to control it whether or

not it is native. For some native species there are times when we should definitely control them – e.g. morning glories can be aggressive weeds when a habitat is disturbed. Hypothetically, there are cases when exotics shouldn’t be killed – for example, short-lived species that may be serving as nurse plants for other hardwoods following a hurricane, or a species which is only of ephemeral occurrence following a disturbance event like a fire or a storm (there are lots of species like this that are typically just roadside weeds).

Despite thinking this is an exotic based on all of the evidence, I personally have never seen a situation *in a natural area* in the Keys where I thought control was warranted because it only occurred at very low densities and I would not expect it to persist. There are, however, situations where *Pluchea* is probably too dense in disturbed habitats because it is interfering with succession, and in such situations, control would be warranted. Control needs should be evaluated on a case by case basis. In some places *Pluchea* may slowly senesce and eventually disappear with no intervention. It has been a weed in the Florida Keys for over a century, but I don’t believe it is a threat to natural areas.

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This year’s conference is being organized and sponsored by Mexico’s National Commission for Knowledge and Use of Biodiversity (CONABIO) and will be held in Cancun, Mexico from April 24-27, 2012. The conference theme, “Meeting the Challenges of the Future,” will be conveyed through a diverse program that will include presentations on the economic, ecological, and sociological impacts of invasive plants and how the three countries can work together more effectively and meet the challenges of invasive plant management now and into the future.

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