

From: Connie Barlow <conniebarlow52@gmail.com>

Subject: What Florida Native Plant Society is saying about *Torreya* pathology

Date: February 7, 2022 at 1:26:25 PM EST

To: tyler.j.dreaden@usda.gov

Cc: executivedirector@fnps.org, torreyakeepers@fnps.org, communications@fnps.org, steve.mcnulty@usda.gov, thomas.m.schuler@usda.gov

RE: Concern about the management implications of your forthcoming paper on *Fusarium torreyae* inoculations of Appalachian native trees — and whether that work will continue to prevent official actions from authorizing the use of climate adaptation tools for helping an endangered glacial relict conifer move north.

Hello Tyler -

January 28, I sent you an email about **your 2020 paper**,

"Detection method for *Fusarium torreyae* the canker pathogen of the critically endangered Florida *Torreya*, *Torreya taxifolia*."

The gist of my communication to you was:

"**Yours is the 5th peer-reviewed paper on the topic of *Fusarium torreyae***, and you are the second USDA pathologist to be listed as an author or co-author on the topic.... Your paper is the first of the 5 peer-reviewed papers to **cite a master's thesis paper in the references**. The master's thesis (2012 by Aaron Trulock) is not peer-reviewed literature, and yet its within-lab research and speculations on **the possibility of *F. torreyae* being able to infect (lethally) other native conifers and hardwoods** have increasingly been used by staff of the two Georgia botanical gardens as reasons to disallow any northward botanical gardens from receiving seeds from n. GA ex situ mature plantings unless they are willing to sign MOU to use the seeds only for genetic safeguarding and none for assisted migration. I personally doubt that the lab-based inoculation results and speculative excesses of Trulock 2012 could have ever been able to pass through a peer-review process without significant editing — and removal of its final paragraph. Hence, I criticize your use of it in your 2020 *F. torreyae* paper. Notably, too, although no peer-reviewed paper has placed *F. torreyae* as being a non-native pathogen, the **initial fear-mongering** ([March 2018 Torreya symposium](#)) about northward movement of a possible non-native pathogen (coupled with recommendation of genetic engineering of Florida *Torreya* for *Fusarium* resistance) is still in the public arena — although, thankfully, absent from recent USF&WS statements."

UPDATE: **Last week a staff member of the FLORIDA NATIVE PLANT SOCIETY**, Lilly Anderson-Messecc, presented an online webinar for the Tarflower chapter on the History and Management of Florida Torreya.

Two of us TORREYA GUARDIANS were among the online audience.

Much of the webinar was uncontroversial, informative, and well illustrated, as there is certainly **great value in TorreyaKeepers volunteers** documenting new specimens on private lands and thus adding genetic diversity to the ex situ safeguarding collections of the two botanical gardens in Georgia. **I was especially pleased that Ms. Anderson-Messecc used moderate language for most of her talk.** My notes recall her as saying that the cause of the Torreya decline is "hotly debated." It was also good that she presented *Fusarium torreyae* as "the primary culprit" (instead of the singular cause). She also said that "Jason [Smith] suspects this fungus evolved in Asia." All this is factual reportage.

I was already aware that Atlanta Botanical Garden staff had reported the Fusarium as being present on "all plant material tested" of Florida Torreya, but **this webinar helpfully clarified that the Fusarium produces active canker pathology only on Torreya individual plants "when stressed"** — which apparently they all are in their peak-glacial refuge in n. Florida. That comports with my experience over the years with the **80-year-old Torreya Grove at the Biltmore Gardens near Asheville, NC.** Fusarium has, apparently, been there since first measured and reported in the original 1986 recovery plan (recently ID'd by Smith at the Biltmore as the torreyae species), and yet the trees look healthy to me — and squirrel-dispersed offspring are producing seeds there too. Hence, the sole reason for refusing new introductions of FL Torreya north of Georgia ex situ locales is for the express purpose of **preventing its spread into other native trees — and it is your collaborative research with Jason Smith on this point that represents the only peer-reviewed grounding for such immense concern.**

Anderson-Messecc mentioned that **Jason Smith has another paper coming out "next month"**, which I presume you are on too, and that this paper documents new experiments (beyond Trulock 2012) that show the Fusarium can kill other native trees, including *Pinus pungens* of the Appalachian Mountains. I shall paste in below an image I captured during her presentation that shows (a) a photo of dying potted *Pinus pungens* in a lab setting and (b) a **shockingly hostile image she used in her program that criticizes the northward "assisted migration" actions of Torreya Guardians** since our founding (by me) in 2005.

During the **Q&A** part of the webinar, **the other Torreya Guardian (who has achieved seed production at his planted grove in Cleveland Ohio)** asked, "I planted my torreyas in 2007 in Ohio. Are you saying I should tear them out?"

Fortunately, Anderson-Messec responded that, so long as torreyas "do not express symptoms" of the disease, it does not pose a risk of spreading to surrounding trees. And therefore, the authorities are not recommending removing previous northward plantings.

BOTTOM LINE: As I expressed in my previous email to you about your 2020 paper, I have great skepticism about the relevance of inoculations of Appalachian tree species in potted laboratory settings — and presumably with no exposure to annual winter conditions of freezing, as occurs in the Appalachian region and northward. At minimum, I hope your forthcoming paper clarifies that **detection of the *Fusarium* on an outdoor northward-planted Torreya specimen that does not exhibit symptoms of the disease**, does not pose a risk to other tree species. Ideally, I hope your forthcoming paper also specifies the methodology of inoculation and the timing and conditions of the lab testing, so that the **ecological relevance of the results** can be evaluated by other pathologists and ecologists.

With concern,
Connie Barlow (my [Researchgate page](#))

One of the images from Ms. Anderson-Messec's slide program:



From: Connie Barlow <conniebarlow52@gmail.com>
Sent: Wednesday, February 17, 2021 10:35 AM
To: Dreaden, Tyler - FS <tyler.j.dreaden@usda.gov>
Cc: Phillips, Catherine <catherine_phillips@fws.gov>
Subject: [CAUTION: Suspicious Link]USFS page on your "Detecting torreya pathogen" paper has wrong photo

Hello Tyler -

cc: Catherine Phillips, asst regional director USF&WS SE region, re her oversight of endangered Florida torreyia

I already had posted your "Detection Method for Fusarium torreyae" 2020 paper onto this lengthy webpage on the Torreyia Guardians website: ["At the Brink of Extinction — Why?"](#)

(Just do an internal "Find" for your last name in order to see where it is on that page.)

My google alert directed me this morning to the **USDA webpage** called: ["Detecting the pathogen that stalks the Florida torreyia, a critically endangered tree"](#)

That would be a good page for me to link to on our Torreyia Guardians "Reports" webpage. But before I do, **please switch out the photo that is there now (which is NOT Torreyia)** and put a real one in.

You can see lots of real photos of T. taxifolia on this page of ours ["About Torreyia taxifolia"](#) plus learn more about its natural history.

I will attach below a photo I often use that I took, which shows a branchlet, with fruit and hand for scale, at Biltmore Gardens NC. I usually crop it to make it smaller and tall rather than wide.

ADDITIONAL REQUESTS:

1. Please let me know **whether the fusarium has ever been detected on or within seeds**, once the flesh is removed and the seeds washed. That is our usual method for assisting the migration of T. tax into northward states, so it would be nice to know if moving bare seeds is safe without using your detection method.

2. Please look at the section within the top-linked extinction page on our website that is titled:

2D. WHETHER THE FUSARIUM IS NATIVE OR EXOTIC, DO NORTHWARD PLANTINGS INDICATE DISEASE RESISTANCE?

And notice that I suggest there that somebody **test for the canker at the two near-century-old mature, seed-producing groves in North Carolina** (Biltmore

Gardens and a private estate near Highlands, NC). Crucially, it is important to find just how far north one need plant in order for the canker to either be unable to live or be **unable to lethally attack a Torreya tree**. It is possible that Jason Smith already found canker at the Biltmore — but if it is nonlethal there, that would be an enormously useful finding that would help our efforts tremendously.

Do know that if you look around our website, you will see that **we ourselves successfully got seed production at an outdoor planting in Cleveland OH beginning in 2018**. Accordingly, Sept 2019 I petitioned the USF&WS to downlist *T. taxifolia* from endangered to threatened. Given the disarray of govt operations during that time, I received one reply that said no and a later one that said my petition was officially under consideration (go to our ["Reports"](#) page and scroll down to Sept 2019 to see it). Since then, I have heard nothing. I would rather collaborate than combat. **Perhaps your paper on the pathogen can be put to use in ways that foster collaboration in behalf of this ancient species.**

Thank you for your assistance,
Connie Barlow, founder of Torreya Guardians

