

Assisted Migration (*Not* Assisted Colonization) for Endangered *Torreya*

by Connie Barlow

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*Below are the key points that [Torreya Guardian](#) founder [Connie Barlow](#) makes whenever discussing the topic of "assisted colonization" or "assisted migration" as a management practice to help the survival prospects of threatened and endangered plants. This blogpost is in response to the January 2011 flurry of interest in this issue, and in what she and the other Torreya Guardians have been doing for the endangered "Florida Torreya" tree since 2005. Media interest lit up when Patrick Shirey and Gary Lambert published in the 27 January 2011 issue of the journal Nature, "**Regulate Trade in Rare Plants**" For full-length treatments by Connie Barlow on this issue see [links at end](#).*

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A grassroots, single-species conservation group that I helped start is in the news again for moving an endangered so-called Florida species into the mountains of North Carolina. We Torreya Guardians are branded as vigilantes, but **helping Florida Torreya find its way northward into the mountains of North Carolina is pretty much like deciding where to go birdwatching to see Arctic Terns in January**. Every amateur birder knows that the place to find Arctic Terns when it is cold and dark in the Arctic is to take a cruise to the Antarctic waters of the Southern Hemisphere. You won't find a single "Arctic" Tern in the Arctic during the Northern Hemisphere winter. They've all gone fishing in the south polar seas.

Similarly, **Florida Torreya is no more native to Florida in today's climate regime than an Arctic Tern is native to the Arctic in January**.

That's why I keep using the original term for what we Torreya Guardians have been doing since 2005: ***assisted migration***. Many professionals, and especially the critics, have started to call what we do "assisted colonization." This is a terrible, woefully misleading description. "Assisted colonization" suggests that we are doing something artificial, something unprecedented — like we're introducing alien species, and let's just hope they don't cause problems with the natives. No wonder some professionals are so upset by what we have been doing!

But when you realize that the particular plant species we have been helping has actually been around for tens of millions of years, and that it has repeatedly had to move vast distances south and north as the continental glaciers waxed and waned, then you realize that what we Torreya Guardians are up to is assisting an ancient and lovely tree do what it has always done whenever things warm up: head north. We're just helping the tree get around habitat obstacles that we humans have put in its way. And we're helping Torreya do that a whole lot faster than its natural seed dispersers, mainly squirrels and possibly land tortoises, could otherwise do the job.

Overall, **whenever Earth heats up, Florida Torreya has got to become Appalachian Torreya.** Remember that in previous warm periods much of Florida has been underwater — as it soon may be again.

Over the very long term, of course, when Earth cools back down again, this beautiful conifer tree will be happy to take up residence yet again in Florida. After all, what would human "snowbirds", who are now in Florida, do in April or May if they didn't have their cars and RVs and planes to help them return to Minnesota and Michigan?

So long as the professional botanists and ecologists in charge of endangered species continue to insist that "native range" is limited to where these species were living when Europeans first arrived on this continent, they will be no better at helping our endangered species survive and thrive than Young Earth Creationists would be for explaining the geology and fossils in the Grand Canyon.

In this time of rapid climate change, **we simply *must* acquire a deep-time perspective.** We've got to look at the migratory patterns of species and habitats with eyes that honor the flow of *biological* history — not just human history. **We've got to start thinking about "native range" in terms of thousands and millions of years, not just a few centuries.**

So long as the professional botanists and ecologists in charge of endangered species lack, what I like to call, "deep-time eyes," they will continue to thwart the survival prospects of endangered plants. They will be more a hindrance than a help for a very silly reason: they see a bogeyman. They see the bogeyman of invasive plants, and they get scared — very scared.

To be clear: I am *not* discounting the threat of invasive plants. Moving a plant species from one continent to another has already plagued my homeland with Asian kudzu throughout the American deep south. Australian Melaleuca is driving out native trees in Florida. Eurasian tamarisk is sucking up precious water along the desert streams of Arizona. Eucalyptus poisons the forests around San Francisco Bay and periodically goes up in flames. To move weedy plants from one continent to another is an ecological sin. **But moving a native and highly endangered conifer tree a few hundred miles northward on its home continent should be even less scary than helping the California Condor re-establish nest-holds on the Colorado Plateau — where it lived only in prehistory.** (See the 2008 paper by Jillian Mueller et al, "[An Assessment of Invasion Risk from Assisted Migration](#)".)

What we Torreya Guardians are doing is helping a highly endangered and beautiful tree move quite a bit more quickly from its southern native range to its northern native range. We're just giving that hitchhiker a lift in making its way along a natural migratory path that it has been slowly traversing for hundreds of thousands — and even millions — of years.

ALSO SEE:

["The Torreya taxifolia USF&WS Recovery Plan Process: An Opportunity to Shift to a Deep-Time Perspective of Native Habitat"](#) (2010 comments submitted by Connie Barlow to the USF&WS).

["Deep Time Lags: Lessons in Pleistocene Ecology"](#) (Connie Barlow's chapter in a 2009 MIT Press book).

["Bring *Torreya taxifolia* North — Now"](#) (by Connie Barlow, with Paul S. Martin; 2005 article in *Wild Earth*). TECHNICAL POINT: In this paper I mention that we cannot expect to find fossil "proof" that the Appalachians are, in fact, the native habitat for this species during interglacial warm times. The Appalachian Mountains rose hundreds of millions of years ago, and they have been eroding ever since. You don't expect to find fossil leaves there. And, unfortunately, the wind-dispersed pollen of genus *Torreya*, which can be expected to settle into bogs and ponds scattered in the Appalachian region, cannot be distinguished from three other native genera: the yews (genus *Taxus*), the cypress (genus *Cupressus*), and the bald cypress (genus *Taxodium*).