

RESPONSES TO 10 QUESTIONS, March 26, 2004

Hello Torreya Group -

This is Connie Barlow, and what follows is the first batch of comments that have come my way. I shall continue to post on the list-serve and send to everybody, so while you are encouraged to join the list-serve, it isn't a requirement. Commenters below are Peter White (twice), Sharon Hermann, Ron Determann (Atlanta Botanical Garden, Paul Martin, Leigh Brooks (Nature Conservancy).

In a separate email, I will provide an annotated list of who is receiving these emails, so we can all get to know one another. My next posting of aggregated comments sent to me will probably not be till Tuesday, so there is still lots of time to have your voice heard on this first round.

In the past, we had bits of philosophical conversation (pro and con "assisted migration") mixed in with practical discussions (like where and how to rewild Torreya in the southern Appalachians). It feels right to have us sort through the the philosophical topography first, before those of us interested and able to work on the practical end go much farther in those kinds of conversations.

For Torreya.

FIRST RESPONSE FROM PETER WHITE:

I wanted just to take up ONE point here:

I argue strongly that no two species are ever identical and we should not sell this idea based on the idea of replaceability. There may be some reasonably similar functions (for example, evergreen shade for streams) but there will be a whole host of differences, too. We should never argue that species are equivalent or replaceable--among other things, it makes it look like when just go out and plant new trees and species to replace old ones and that all environmental disasters (e.g., the hemlock woolly adelgid) can just be writ out of the system. I don't believe red maple is a replacment for sugar maple, that Fraser magnolia is a replacement for umbrella magnolia...that oaks are replacements for chestnut. There are some similarities for some functions, but I believe this is going down the wrong path.

I don't belive this either as a philosophical statement or a biological one.

I'll read the rest of the email and comment later on other issues.

RESPONSE FROM SHARON HERMANN:

I concur with Peter's comments. I don't see this as a useful path to consider.

Sharon

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SECOND RESPONSE FROM PETER WHITE:

In a message dated 3/24/04 9:32:05 PM, peter.white@unc.edu writes:

So, here is one more thought:

There seem to be two rationales for growing *Torreya* in the to the north of its current location, one simple and one complex. I am attracted by the simple rationale and troubled by the complex one.

The simple rationale goes like this: It's not doing well in Florida; it seems to do well in cultivation in NC. Let's save this species by planting it in botanical gardens (we have a collection in Chapel Hill) and seeing if we can establish it in self-reproducing populations in the wild. This is essentially a biodiversity and Noah's Ark rationale. We don't have to claim it was once here. We don't have to claim that Indians prevented its northward migration. We just want to do it because this species (and, for better or for worse, it is a charismatic species) will have a better chance. Throw in the next 100 years of climate change and this rationale seems even more appealing. There are a lot of things we don't know. We don't know if it will outcompete native species (though we doubt it will). We don't know if there are dispersers that will assist it. We don't know if its pathogens are present or will spread with it. But, what the heck, we'll give it a shot. We don't need to put it everywhere, we just need to put it in a few places and monitor it because our real goal is that the species survives, not that it fills all potential habitat.

The complex rationale goes like this: That there is some historical precedence to convince us that it SHOULD be here--that in ONCE was here (in NC or the So. Appalachians) and that it was only people that have prevented it getting here. Corrolaries of this argument are that it plays an essential role in this ecosystem or that it overlaps in role with hemlock and will help the forest recover from hemlock loss. In that sense, this rationale suggests we are just assisting what should have happened naturally and that, once *Torreya* is moved, it will regain its rightful position and role. We are assisting--but the aim of our assistance is, paradoxically, to create the natural situation (cf. White and Bratton, 1980, *After Preservation: the philosophical and practical problems of change. Biological Conservaiton*). This is where the verb "wilding" seems to imply that we are assisting with a recovery towards wildness. In the email of today I see this desire to establish the naturalness, historic precedence, or ecosystem completeness.

Personally, I don't believe the complex rationale is the essential argument. If *Torreya* were doing well in Florida and if we didn't face climate change, I would not care to artificially expand its range northward. I like the idea that history matters and creates narrow endemics with small ranges. I think that glaciation created a very interesting signature in narrow endemism in the SE (I gave a paper at the Ecological meetings laster summer in Savannah on endemism in the SE in plant and animal groups--see ppt posted through my UNC web page: go to <http://www.bio.unc.edu/faculty/peet/lab/PEL/publications.htm> and look under ESA talks for White, McKnight, and Walker). There are even some interesting ecological spin offs when species don't saturate their potential range. One of the strictest definitions of native vs. exotic is that you should not move a fish above a waterfall it cannot cross on its own. This might seem silly but some mt streams have waterfalls and the streams above the waterfalls are missing fish--but that creates a refuge from predation for prey species.

Vernal pools here at the botanical garden are good for salamander reproduction--BUT in wet years, fish swim into the pools and eat the eggs and larvae. It turns out that wet years connect the ponds and dry years leave them isolated. Wet years are good for fish, dry years for salamanders. I am pretty far from *Torreya* at this point, but my general point is that small range siize, lack of saturation of available habitat, and barriers to dispersal are not inherently bad--they are one of the interesting products of evolution on our variable planet, creating geogrpahic turnover of species and local uniqueness.

I could wax eloquently about the good, bad, and indifferent processes that created a narrow endemic situation like *Torreya*. But the bottom

line is that, were it not for Torreya's poor outlook in Florida and if it were not for the rapid climate change caused by people, I'd be happy to let it thrive in a narrow range. Even to move it northward, to me, does not have the goal of saturating the potential range or restoring some ideal state. It has the goal of preventing the extinction of the species.

So this makes me sound like a person motivated only by biodiversity and saving species, rather than wildness. I like both--for example, I like the idea that Great Smoky Mts National Park would NOT be the site of Torreya introduction. I would love to see Park restoration occur for other species. For example, the Park just got back some elk-I guess that's ok, but don't forget we lack mountain lions and wolves and I'd rather have those with the elk. Leopold wrote that "deer live in mortal fear of the wolf, but the mountain lives in mortal fear of its deer" and elk overgrazing does occur on other national parks. So, I don't mind putting mt lions, wolves, and elk back in the Smokies. They were all there within a few 100 years. But by and large I like wildness to dominate the park, even a wildness that is affected by air pollution and climate change (well, obviously I'd like to reverse those, but the fact of those doesn't make me want to move Torreya into the park).

Peter

Peter -

Bravo! It is great to read the argument happening right inside your head, pro and con. Thank you for letting the rest of us have access to your internal conversation. Your email sets an example for all of us: let's regard this email discussion as a kind of "conversation cafe," where we can freely exchange ideas, however tentative or ill-formed, and also as individuals know that we are not held to anything that we might have earlier said. We can all evolve our views as we go.

For Torreya,  
Connie

RESPONSE FROM RON DETERMANN (Atlanta Botanical Garden):

Please note. The Atlanta Botanical Garden is currently working on the coordinated trial recovery of the species in the wild consistent with the recovery plan and initial indications are even encouraging (two years of data only). This will be a very long term project and who knows may fail after many years. In addition we are interested in

safeguarding the species with as much known genetic variance (as many indexed individuals as possible of KNOWN origin) in cultivated settings only! Even far away from original distribution location, such as cooler climates. Climate changes however are not the real reason for its decline, pathogens are. We do not see the need to integrate the species into natural areas of any kind other than the original. Ecologically this species cannot replace any other....

Ron -

Thank you for your forthright statement. This is great! I like having a full debate on this, with people coming in from all angles. We shall see how this flows. Ultimately, we may be able to fashion from this discussion different sets of people gravitating to at least two distinctive positions, and then publishing both sides in the fall issue of Wild Earth. Maybe like Supreme Court decisions, with a Yes and a No, and individuals then weighing in with their own nuances to each.

For Torreya,  
Connie

RESPONSE FROM PAUL MARTIN:

In a message dated 3/24/04 6:35:54 PM, pmartin@geo.arizona.edu writes:

Hi Connie,

Wow! You (we) may have thought the Torreya project would involve grabbing only a few black hairs, but now I see its in fact the tail of a bear.

The basic idea still seems sound. There are reasonable reasons for thinking that Torreya should be farther north than it is naturally. From what you say, it seems that the tree does best when it has been planted artificially to the north and higher in elevation than along the Apalachicola.

Why did it not move north fast enough? Just possibly for the same reason that Critchfield's spruce is extinct, i. e. by anthropogenic fires of spring at the end of the last glacial at a time when the climate was warming rapidly.

Now, the global warming model gives, or will give, license to those who promote experimental plantings of all eastern deciduous forest trees north of their present domain. This will be a radical step for some plant people, but there seems no way to ignore the need for experiments in the face of uncertainty. The next decade of global temps may well pull some big surprises, and not all for the worse..

We might, for example, see the southern Appalachians experience a rise in mean annual temp and a reduction in range. Summers would not be much warmer than at present and winters decidedly warmer (only enough frost to kill tank bromeliads one year out of 50, with no damage to trees, i.e. the climate of Rancho del Cielo in Tamaulipan cloud forest. At 4000 feet the place has a species of beech, of fir (Abies), hard maple, an evergreen magnolia, some tropical montane species we don't have, including six species of oaks all different from ours, red bud, and a taxon of sweet gum different from ours, trees 100 feet tall with a tight crown (before lumbering began.

We could do worse than end up with habitat in the Smokies for Tamaulipan cloud forest, thanks to global warming .

Are we playing god in all this? I guess so. Its the only game left, unless the Kyoto Treaty is resurrected from the dead.. Carefully conserving what is where it is vaporizes if the bioclimate shifts massively.

Best,

Paul

Paul -

Yours is indeed a brain to pick! Thanks for including all the detail and speculations. I'm getting in some very interesting responses. Will assemble them all next week and send them out en masse to everyone.

For Torreya,  
Connie

RESPONSE FROM LEIGH BROOKS

In a message dated 3/24/04 5:30:42 PM, leigh\_brooks@tnc.org writes:

Connie,

Thanks for sharing all those exhilarating ideas. I look forward to hearing people's thoughts on how to preserve biodiversity in light of climate change. When I started thinking about the implications, I felt overwhelmed and helpless. It helps to know others are concerned and putting on their thinking caps.

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Leigh -

I agree! After I assemble all the comments from this round, I will get them out to all so that we can all consider what everyone is saying, and have the discussion continue. Somehow it is all less daunting knowing that I personally don't have to figure everything out. There is a community of expertise and dedication and I am hopeful that good things will emerge beyond the capacity of any one of us to envision right now.

For Torreya,  
Connie

THE END FOR MARCH 26, 2004