

Subject: Re: Prof Reichard requested to comment on mgmt plan Torreya assisted migration

Date: Thursday, May 13, 2010 8:51 PM

From: Sarah Reichard <reichard@u.washington.edu>

To: Connie Barlow <cbtanager@bigplanet.com>

Cc: Vivian Negron-Ortiz <Vivian_NegronOrtiz@fws.gov>, Janet Marinelli <jmarinelli@earthlink.net>, <jmaschinski@fairchildgarden.org>, Kathryn Kennedy <Kathryn.Kennedy@mobot.org>

Hello Connie,

I am not against assisted migration. For some species this may be needed, for others it may not. The work that Janet may have referred to is for a book that the Center for Plant Conservation is producing with Island Press on reintroductions of rare plants. In working on my chapter on assisted migrations as a pathway for biological invasion, I found I was reassured both through invasion theory and weed risk assessment tools that while the possibilities of invasion exist, they are reasonably minimal.

However, as a biologist who also works on rare species and is on the recovery team for two species, I believe all planning for rare species should be done thoughtfully, with the very best biological science informing actions. I understand the feeling of urgency that you may feel, but there are many excellent scientists carefully considering the risks of each action taken toward recovery. They also deeply care about the species they are charged with protecting. No one wants to see any species reserved to seed banks - we all want vibrant populations in the wild. We just need to make sure we consider all the risks - not just invasive risk, but the potential impacts to the communities to which it is introduced beyond invasion, and others.

The Leopold Report may need revising - certainly there have been controversies about it for some time. This is a wider issue that will be decided at a much higher level than state staff scientists.

The world needs passionate people who care about our plants and animals. The world also needs biologists who do indeed see a bigger picture than passion about a single species and who can weigh actions to determine impacts. I am pleased that the USFWS respected your views and I hope you will also respect their need to consider that bigger picture.

Thanks,

Sarah Reichard

----- Original Message -----

From: "Connie Barlow" <cbtanager@bigplanet.com>

To: <reichard@u.washington.edu>

Cc: "Vivian Negron-Ortiz" <Vivian_NegronOrtiz@fws.gov>; "Janet Marinelli" <jmarinelli@earthlink.net>

Sent: Thursday, May 13, 2010 9:56 AM

Subject: Prof Reichard requested to comment on mgmt plan Torreya assisted migration

To: Professor Sarah Reichard, specialist in invasive organisms, at the University of Washington School of Forest Resources

Re: Request to comment on the invasive prospects of *Torreya taxifolia* (endangered conifer tree no longer reproducing in its historically native range in N. Florida, and hence the "poster plant" for the assisted migration movement") for the update now being discussed on the ESA mgmt plan for this species

Fr: Connie Barlow, founder of Torreya Guardians

The writer Janet Marinelli (whose article in the current issue of Audubon Magazine, "Plant Guardians," chronicles our group's "vigilante" assisted migration action in behalf of this tree, suggested I contact you, after I sent her (and others involved in the assisted migration controversy) the email pasted in below. She indicated that you might have a paper in progress that may help to lessen concerns about the invasive dangers of translocating north a species like the animal-dispersed, slow-reproducing conifer I advocate on behalf of. The url of Janet's article is:

<http://www.audubonmagazine.org/features1005/activism.html>

Basically, I am trying to recruit some big guns to comment on the bigger and precedent-setting questions on this ESA plan update. Thus far, Josh Donlan (conservation biologist and lead author of the 2 Pleistocene Rewilding papers) has said that he will contribute comments in favor of including a pilot translocation project in the updated plans for this endangered tree. The existing recovery team is very specialized in their expertise, and as a concerned citizen who attended the official meeting this week, I felt a compelling urge to try to get some big-picture thinkers, like yourself, into the process -- even if it is just a paragraph summarizing your general discoveries and giving a citation. If any species deserves to have the big-picture brought into discussion of its fate, then *Torreya taxifolia* is it.

Here is the contact information for the person in charge:

Vivian Negrón-Ortiz, Ph.D.

Botanist, U.S. Fish & Wildlife Service

1601 Balboa Ave.

Panama City, FL 32405

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Vivian_NegrónOrtiz@fws.gov

<http://www.fws.gov/panamacity/stafflist.html>

I sent the following letter this morning:

May 13, 2010

Fr: Connie Barlow, founder of Torreya Guardians

To: Jessica Hellmann, Camille Parmesan, Patrick Shirey, Josh Donlan

cc: Vivian Negrón-Ortiz (USF&WS person in charge of plan update for management of *Torreya taxifolia*)

cc: Estella Leopold (paleobotanist, emeritus Univ Wash)

cc: the 4 journalists/writers who have done long pieces on assisted migration: Janet Marinelli, Emma Marris, Michelle Nijuis, and Jim Robbins

Re: Assisted Migration and the USF&WS management plans for endangered species: A call for a new "Leopold Report" equivalent and for you folks to make it happen, plus news on the May 11, 2010 recovery plan meeting (USF&WS) for *Torreya taxifolia*

Dear Jessica, Camille, Patrick, and Josh -

As you know, I keep up on both the academic papers and the media reports on the issue of assisted migration, and I post an annotated list of these with links updated on my website:

<http://www.torreyaguardsians.org/assisted-migration.html>

My sense is that, despite the necessary objective and measured language that Jessica, Camille, and Patrick use in your pivotal and crucial professional papers and conferences, of all the USA participants in this issue, you three seem to have the most "fire in your belly" for moving ahead with assisted migration/colonization/translocation in some responsible way < and that the

fire is that you know in your bones that at least some species or genotypically distinct populations do, or will soon, absolutely require such unprecedented assistance for their continuation. (Else, we resign ourselves to giving them loving and costly care until they go extinct in the wild, not unlike our service to the extreme elderly in nursing homes. *Torreya taxifolia* is a poster-plant for that default path, as it is now being coddled in precisely that way in its historically native range in northern Florida.)

Josh Donlan is receiving this email because, while he is not directly involved in assisted migration, he is the lead author of 2 paradigm-breaking papers proposing Pleistocene Rewilding, based on, what I like to call, a "deep-time perspective." His papers:

<http://rewilding.org/pdf/Pleistocene-Re-wildingNorthAmerica1.pdf>
http://www.advancedconservation.org/library/donlan_etal_2006.pdf

CALL FOR A NEW "LEOPOLD REPORT" that sets a new benchmark for "native": In this email I will be suggesting that the USF&WS initiate a new "Leopold Commission", to produce a benchmark standard of "native habitat" and "native range", etc., for implementing the ESA responsibly, species by species, in this time of incontrovertible climate change. I am cc-ing Estella Leopold, botanist sister of Starker A. Leopold (both, children of Aldo), as she is still actively producing publications with a deep-time perspective, and she and I have recently been in email communication re a paper she is working on about a new Tertiary (late Miocene) macrofossil of genus *Torreya* in Washington state. Note: url for the 1963 Leopold Report used ever since by National Park Service as the benchmark for native and natural is:

http://en.wikipedia.org/wiki/Leopold_Report

Note that those who wrote/supported the 1973 Endangered Species Act would probably have been working from the Leopold Report default baseline, which reads: "As a primary goal, we would recommend that the biotic associations within each park be maintained, or where necessary recreated, as nearly as possible in the condition that prevailed when the area was first visited by the white man. A national park should represent a vignette of primitive America."

TORREYA MGMT PLAN UNDER REVIEW: The impetus for this email is that 2 days ago I attended (by phone call-in) a day-long meeting of the official working group organized by USF&WS (Vivian Negron-Ortiz) for the ESA species *Torreya taxifolia*. I felt welcomed by Vivian Negron-Ortiz, the FWS staff who led the meeting, and felt well listened to by the other participants (all professionals engaged in research or on the ground conservation of this species, plus several Florida landowners with *Torreya* onsite who are avocationally engaged in this issue, as I am.) I was shocked, however, that

when Vivian popped the question (re: whether the existing mgmt plan should be altered to include assisted migration) and requested each party to make a 5-min or less statement, I was the only one who was not 100% opposed to it. The response was completely bi-polar < with me as the lone voice (sometimes histrionically) blending objective points with emotional appeals ("I love this tree!") or rhetorical outbursts ("Just where do you think this species was when Florida was under water?")

USF&WS emphasizes in the official agenda for the meeting that they need not reach consensus on any of the issues raised, and since this was the last item on the agenda for a very long day, our opening statements were about all that happened. So Vivian got the data that she needed in order to in-house make a decision on that issue. My hope is that some of you may choose to add your own voices to the mgmt considerations for the official plan update. Though you do not "know" this particular species in the way that all of us on the call do, you can still speak to the big-picture issue. My sense is that, even if USF&WS does want to open up a bit in the direction of assisted migration, they will have a hard time justifying it if nobody but "eco-vigilante" Connie Barlow recommends it. Hence my plea to you all. Please participate in that management plan, if by nothing more than by writing a one-para cover suggestion and submitting one of your papers as support for whatever you might wish to recommend. I mean, why not just a teensy little official "pilot" project of assisted migration of this plant, in which the biological and sociological responses could all begin to be studied?

STATUS OF THE ASSISTED MIGRATION ISSUE: Last thing I knew via the Google alert I have for "assisted migration" and its cognates is that that Camille Parmesan is quoted in the media of planning to go ahead with a proposal to the USF&WS for assisted migration of the endangered species she works with in coastal Calif: checkerspot butterfly of some species. That will be a far easier sell, as (a) she is one of the official researchers already and thus the advocacy for A.M. comes from the inside, and (b) the geographic transit is far less audacious than the only translocation that makes any sense for *T. taxifolia* (about 400 miles). So maybe the "poster insect" for A.M. will be where the policy shift occurs, rather than with the "poster plant" for A.M.

THE ROLE OF JOURNALISTS: Now the journalist/writers I have cc-d here play a very important role. It is they who ramp up lone voices, like mine, into a "public" response that cannot be ignored by government officials who must be responsive to public sentiment as well as professional recommendations when working on conservation plans. I suspect you are all familiar with their key works (all accessible via my links page on my assisted migration webpage), but here is the quick list:

? Janet Marinelli, Audubon Magazine, May/June 2010 issue, "Guardian Angels" (re: us Torreya Guardians doing our assisted migration of Florida Torreya into NC in July 2008). She told me she will have a longer version of that article (editors had to cut it back a lot) eventually up on her personal website, but here is the url for the Audubon piece:

<http://www.audubonmagazine.org/features1005/activism.html>

? Michelle Nijhuis, Orion Magazine, May/June 2008 issue, "Taking Wildness in Hand: Rescuing Species" (Torreya controversy as core example):

<http://www.orionmagazine.org/index.php/articles/article/2966/>

? Emma Marris, "Moving on Assisted Migration" news report, Nature, online 28 August 2008. She has a chapter entirely on A.M. in a forthcoming book on the hot new issues in conservation biology. Here is the Nature report:

<http://www.nature.com/climate/2008/0809/full/climate.2008.86.html>

? Jim Robbins, Conservation (popular/professional magazine), Apr-Jun 2009, "Between the Devil and the Deep-Blue Sea." The implications of this particular article are hugely important for Vivian to know about, so I quote by summary of it in full beneath the url:

<http://www.conservationmagazine.org/articles/volume-10-number-2/between-the-devil-and-the-deep-blue-sea/all/1/>

Arresting article on the extent and speed of the paradigm shift in conservation away from traditional "preservation" modes of intervention in behalf of biodiversity to "adaptationist" modes, including the growing acceptance of "assisted migration" as a management tool to cope with globally and regionally shifting climates. Superb coverage of the wrenching change of heart (and financial focus) for conservation programs rooted in "restoration" to practically address the irreversible shifts in climate now inarguably underway. "Managed retreat" (term used by conservation biologist Reed Noss, who argues for an overhaul of Everglades restoration policy) now joins "assisted migration" in the growing panoply of conservation terms and tools.

Now on to the substance of my proposal:

"The Torreya taxifolia USF&WS Recovery Plan Process: An Opportunity to Shift to a Deep-Time Perspective of Native Habitat"

This is the title of the recommendation/paper I submitted yesterday to Vivian as my contribution to the planning process for the update of the ESA plan for *Torreya taxifolia*. It is 8-pages and contains most of the arguments, and with citations, that I will make here in brief. Here is the url for you to see or download it, as I uploaded its pdf onto my website already:

<http://www.torreyaguardians.org/barlow-2010.pdf>

The ABSTRACT includes, in part, these two main (heretical) suggestions:

1. The conclusion is that the "native range" for this species during this stage of an interglacial (and increasingly so as climate continues to warm) is not to be confused with "historic" native range. *Torreya taxifolia* is no more native to the Apalachicola region during this peak stage of an interglacial episode than the Arctic Tern is native to the Arctic in January (the tern migrates annually from pole to pole). Assisted migration for this endangered conifer tree is an ecologically responsible action, in that the window of opportunity has closed for the species to make that 400 mile migration on its own (that is, with the help of squirrels).
2. More broadly, I propose that the USF&WS use this particular endangered species management plan revision as an opportunity to rethink how the word "native" can most responsibly and scientifically be defined and interpreted in accordance with the Endangered Species Act for compliance with the Act's mandate in this time of rapid climate change, and especially for slow-moving (non-wind-dispersed) species, with long generational times, and whose northward migratory corridors have been prohibitively altered by logging, agriculture, fire, urban development, or the drowning of riverine forest habitats by dams.

Notice that this is a fundamental paradigm shift I am advocating. Today I understand my advocacy in this way (it keeps evolving!): I want conservation biologists and ESA researchers and managers to shift their default position on what is "native range/habitat". Right now, in order for the management plan for any species to allow for translocation, we have to advocate it under the banner of "assisted migration" and thus we appear to be in direct (and frightening) abrogation of the core biodiversity dictum to guard against the careless or intentionally benign introduction of any exotic species (which may then go kudzu on the environment). This is as much a P.R. concern as a professional concern, because it has taken decades to educate the public to stop moving alien stuff into their gardens and ponds. A.M. could seriously harm that conservation gain. So, my new proposal today that I would love to hear your reactions to:

NEW PROPOSAL: Let us stop advocating "assisted migration" from the standard

paradigm and begin advocating it from the new, deep-time paradigm. I suggest that a deep-time perspective is a LESS RADICAL way of promoting it! Only a deep-time perspective allows us to absolutely hold to the "native-range" standard of conservation, maintaining complete opposition to introduction of exotic species. We simply redefine what is "native" from a broader benchmark that does not blind us to the fact that species did not just miraculously appear in North America in 1491. They have a long, long pre-history that we must take into account now that we have shifted to accommodating future climate change into our conservation planning. Only a knowledge of the past can help us manage for the future. Hence the need for a new Leopold Report, but for this era of rapid climate change and expressly for the management of ESA species by the USF&WS.

For example, the Apalachicola region of the Florida panhandle is, of course, "native range" for *Torreya taxifolia* < but so are the southern Appalachians. Apalachicola is native range during peak glacials; southern Appalachians is native range during peak interglacials < and what part of the glacial/interglacial cycle are we in now? (Duh!) Maybe Camille's checkerspot speciated post Wisconsinan glaciation (I don't know anything about that insect), but *Torreya taxifolia* assuredly did not! The geographic distribution of this genus all suggests an instance of the botanical classic "Arcto-Tertiary Disjunction" -- which logs the speciation events back to at least the Pliocene from a once more smoothly circumpolar genus distribution. Once one wakes up to this deep-time perspective, there is no going back. It is like choosing the "red pill" in the "Matrix" movie. And then when one starts seeing through that lens, one can no longer tolerate the myopic professionals who just assume that the default position must be 1491 distribution. (Note: in the case of *Torreya*, its pollen is indistinguishable from *Taxodium*, *Taxus*, and *Cupressus*, so all the great pollen analysis work cannot tell us where it lived during the post-glacial migrations or before. Only macrofossils can. And you know what? Not only are there no macrofossils of *Torreya* in North Carolina for any time in the Cenozoic (the only macrofossils of genus *Torreya* in eastern NA are Cretaceous), there are no macrofossils of *Torreya* in Florida at any time! 1491 must be booted out the door.

Here is a url for Arcto-Tertiary Flora:

http://en.wikipedia.org/wiki/Arcto-Tertiary_Geoflora

PUBLISHED PAPERS THAT CAN SUPPORT THIS PARADIGM SHIFT:

1. "An Assessment of Invasion Risk from Assisted Migration" by Jillian M. Mueller and Jessica J. Hellmann, *Conservation Biology*, 28 June 2007. Content: Distinguishes history of inter- v. intra-continental invasive species in assessing the risks. Concludes that fish and crustaceans may pose

a high risk. "We conclude that the risk of AM to create novel invasive species is small, but assisted species that do become invasive could have large effects." NOTE TO JESSICA: The old url I had linked to this no longer works. Give me the new url. Also, I sense that this article is essential for convincing conservationists that N-S movements in eastern North America are not dangerous. In fact, can anybody show me an example of an invasive species in among plants in the eastern USA that is, in fact, owes to translocation N-S in eastern North America? I bet there are no examples.

2. "Bring *Torreya taxifolia* Back < Now" by Connie Barlow and Paul S. Martin, Wild Earth, Fall/Winter 2004/2005 (gray literature)

Content: This is the paper that launched *Torreya* Guardians, and it proposes a deep-time definition of "native" as the rationale for moving the species.

Note: Paul S. Martin is a highly regarded palynologist /paleoecologist, initiator of the "Overkill theory" in 1966, and who readily accepted Hazel Delcourt's overturning of the paradigm he worked within initially: that species migrated northward as intact communities while the interglacial proceeded. url: <http://www.torreyaguardsians.org/barlow-martin.pdf>

3. *Forests in Peril: Tracking Deciduous Trees from Ice-Age Refuges into the Greenhouse World* by Hazel Delcourt, 2002 (book).

Content: Hazel is the premier palynologist whose 30 years of work in the eastern USA conclusively overturned the assumption that species repopulated northern regions by migrating northward as intact communities. Species moved independently, opportunistically, and thus they cohabited for centuries/millennia at a time with very strange bedfellows. (Hence the idea that moving *Torreya* up to N.C. may play out negatively on the resident species is just plain absurd.) In my recommendations to USF&WS I strongly advocate for all members of the recovery team to read this book. In fact, this is the book that launched *Torreya* Guardians because it launched into the email communications with Hazel, Paul, and others that eventually resulted in Paul's and my paper. I wrote two reviews of this book: One for Wild Earth magazine in the same issue in which Paul's and my advocacy piece appeared. url: <http://www.torreyaguardsians.org/hazel-delcourt.html>

The other review is on the book's Amazon.com page:

http://www.amazon.com/Forests-Peril-Tracking-Deciduous-Greenhouse/dp/0939923890/ref=sr_1_1?ie=UTF8&s=books&qid=1273752937&sr=1-1

A NOTE TO THE SCIENTISTS: If any of you discover that you have swallowed the red pill and have opened your ecological eyes to a deep-time way of seeing your focal species and the conservation issues at hand, please feel free to just run with this perspective on your own. I am out of the loop in that regard, and I absolutely depend on you professionals to do the work with your colleagues. I just want to take care of my tree, and ultimately I need your help.

Together for Torreya,
Connie Barlow

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