SCIENCECHRONICLES

Shoreview, Minnesota. Credit: Priya Saihgal via Flickr and Creative Commons.

Editor's Note

A few months ago, the online journal Mongabay ran a four part series titled "Evolving Consevation." The first installment had an even more provocative headline, asking "Has big conservation gone astray?"

It's a question worth considering, and the reporter, Jeremy Hance, certainly covered a lot of ground. The result is exhaustive, at times exhausting, but in the end unfulfilling. Still, it's worth a read if you missed it and have the time.

What struck me about it and and why I bring it up now, is it seemed to fit a larger pattern. So many people writing about and even some engaged in carrying out conservation fall into the trap of painting it as series of conflicting absolutes.

So many books and articles, including the recent Mongabay series, trace this back to the alleged founding conflict between John Muir and the Progressives. That makes for great storytelling — as a creation myth it is hard to beat the meeting between Muir and Theodore Roosevelt over a campfire at Glacier Point in Yosemite in 1903.

This is neither the time nor the place to debate the historical veracity of the way that meeting has been portrayed and how — or whether — it shaped conservation in the decades to come. Suffice it to say Muir and Roosevelt were both far more complicated than that story would lead us to believe, but in order to fit them into their roles as ideological paragons we need to whittle them into shape, nuance be damned.

Thus began the pattern of setting up conservation as inherently a conflict between vastly different ways of seeing the world and the place of human beings and their technologies within it. Perhaps it is the urge to simplify a complex endeavor, but the pattern has played out over and over: parks vs. people, old conservation vs. new, and now, per Mongabay, a conflict within the conservation community itself, big conservation vs. small.

No one can deny that conservation can lead to conflict; the question is whether it is helpful to to see it as spawning conflict by its very nature.

Given the tenor of the times, it strikes me that the last thing we need to do is find a way to slot another socially important endeavor into convenient political definitions.

The perspective missing from the Mongabay series and the conversation in general is that there are no ideologues in the conservation trenches. The people implementing projects are almost without exception practical and pragmatic, seeking to solve mercilessly complex problems with small budgets and little time. They will choose the best tool available, regardless of whether that tool is considered "traditional" or "new." The real question is how effective a given tool will be in a given set of circumstances. The answer is never as clear as we would like or as many of the warring factions seem to believe. SC

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Article

Risks and Rewards of Investing in Hydropower

By Jeff Opperman, lead scientist, Great Rivers Partnership, The Nature Conservancy

Yeywa dam, Myanmar. Credit: eng.SinoHydro.com

As a personal investor, you tend to hear a lot about balancing risk and reward through a few fundamental strategies, such as developing — and sticking to — a long-range plan that features a diversified portfolio.

But this is not an essay on personal finance. It's about hydropower energy and sustainable development and how countries that invest in hydropower often don't follow those fundamental strategies. And how, as much as any country, Myanmar stands poised to benefit from adopting them.

Like most countries, Myanmar thus far has not relied on a long-range investment plan for hydropower development; initial projects have often not delivered full rewards but have certainly underscored hydropower's risks, including social and environmental impacts and conflicts. One high-profile example was the Mysitsone project, a 6 gigawatt (GW) dam planned for the Irrawaddy River, which was suspended due to social conflicts after the developer, the China Power Investment Corporation, had already invested hundreds of millions of dollars.

Myanmar has recently undergone a dramatic transition in government with the National League for Democracy (NLD) entering power this past spring. In their electoral campaign, the NLD raised the issue of hydropower's impacts and articulated strong support for sustainable energy development. Thus, the new government is starting with a clear mandate to reassess current practices for hydropower planning and management and to require high standards.

Ed. note: This essay describes research conducted in a collaboration between The Nature Conservancy and the UK's Department for International Development, WWF and the University of Manchester. Anthony Hurford, Julien Harou, Joerg Hartmann, Guenther Grill, Jian-Hua Meng, Emily Chapin and Amy Newsock also contributed to the research described here.

The Nature Conservancy (TNC), WWF, and the University of Manchester (UK) recently released a report (funded by the UK's Department for International Development) exploring the benefits of a long-range, diversified portfolio approach to hydropower investments and illustrated its potential value to Myanmar. In the report, we propose that system-scale and comprehensive planning—what TNC calls 'hydropower by design'—can allow the government to identify a set of investments that will provide the broadest rewards to its people with lower risks and impacts.

For many countries, hydropower is a primary source of electricity or factors prominently in their development plans. The world is poised to approximately double hydropower capacity by 2040, building as many hydropower dams in the next twenty-five years as were built in the previous century.

Hydropower dams are major investments. They can produce significant rewards—electricity to grow economies and alleviate poverty—but also run great risks. Financial risks include cost overruns, delays and, once built, river flows—and thus electricity generation and revenue—that fail to live up to expectations. Considering broader economic values of a country, risks also include ineffective relocation programs for people displaced by reservoirs and lost fisheries and other environmental impacts. These environmental and social impacts can generate conflict and contribute to delays and cost overruns – socioeconomic risks manifesting as financial risks for investors and developers.

However, most countries do not follow investment fundamentals for managing hydropower's risks and rewards. They don't pursue diversified portfolios, but instead go all in on a single project and then another one. And they often choose these investments based on very limited information and without a long-range plan of how those investments will work together toward a set of objectives. In that context, hydropower development resembles gambling more than investing.

For Myanmar, hydropower offers potential for both great rewards and great risks. Two-thirds of its population lacks access to electricity while the country has a large undeveloped hydropower potential, estimated at 100 GW (20 times current total capacity for electricity generation and four times the estimated demand in 2030).

But hydropower also poses high risks for Myanmar. Its primary river — the Irrawaddy — contains much of the country's hydropower potential but is also a critically important resource for navigation and agriculture. River fisheries are also extremely important: Fish are the greatest source of animal protein in Myanmar and the country ranks fourth in the world in terms of freshwater capture fish harvest (1.3 million tons) from a fishery that employs 1.5 million people.

Hydropower development can impact all these resources, some positively, some negatively, and, for some, a mix of positive and negative. A hydropower by design approach seeks to compare and identify a set of investment decisions that work together to meet objectives for water, energy and river health. To illustrate the potential benefits of this approach, we

The world is poised to approximately double hydropower capacity by 2040, building as many hydropower dams in the next twenty-five years as were built in the previous century.

developed a framework to compare investment options on the Myitnge River, a medium-sized tributary of the Irrawaddy River with two existing hydropower dams. We examined multiple portfolios that represent different combinations of additional dam sites (up to three additional dams) and designs and operational rules for current and/or potential dams (e.g., how they store and release water). Each portfolio was quantified in terms of performance across 10 metrics such as energy, investment cost, fisheries, forest loss, navigation and biodiversity. Due to relatively limited time and resources available, this research was not focused on making specific recommendations on investments. Rather, we wanted to illustrate how this approach could inform planning, illustrate tradeoffs associated with choices, and identify options that would be unlikely to emerge from a project-by-project approach to planning.

The results clearly showed that a system-scale approach can identify multiple development options that meet energy objectives while minimizing negative impacts or bolstering other sectors, such as navigation. For example, building additional dams in the Myitnge sub-basin would increase river fragmentation and could potentially diminish fish production. However, the research also found several combinations of dams and operating rules that would produce almost the same amount of energy, but with potentially much lower impacts on fish productivity. For example, Figure 1 shows that option E produces nearly the same electricity generation as the maximum, but with far better performance for fisheries. Option A performs even better for fisheries, with 93% of the total generation.

Figure 1. Options for dam development in terms of performance for fisheries and hydropower generation. Only pareto-optimal options for these two resources are shown.
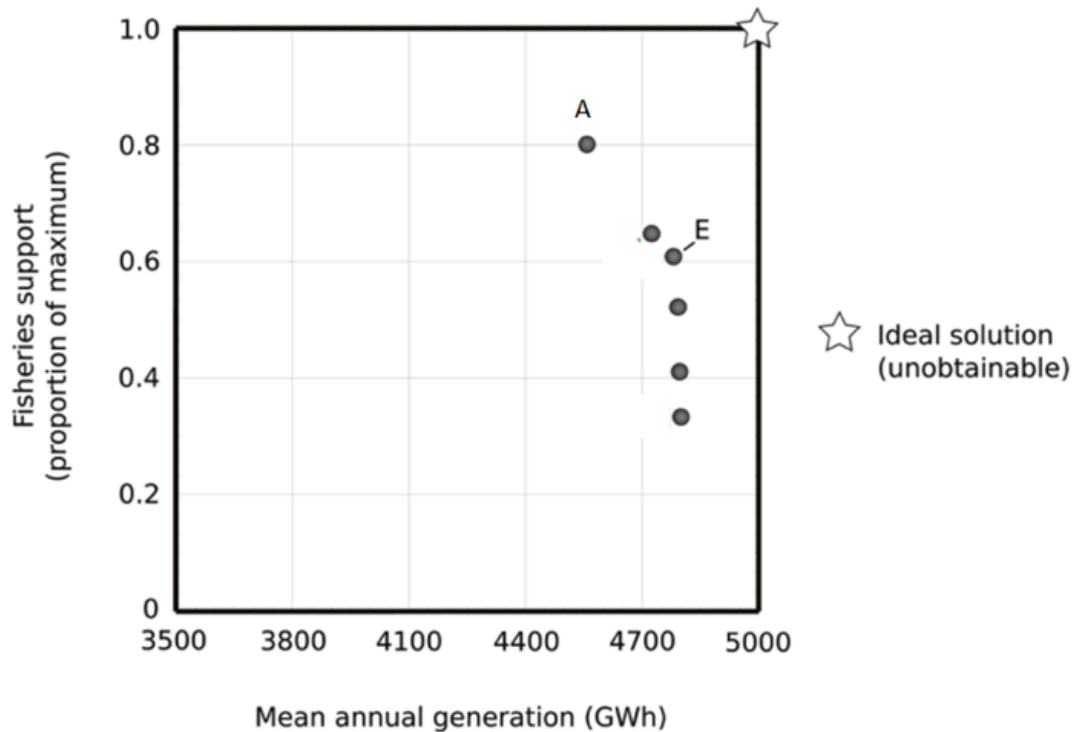
A system-scale approach can identify multiple development options that meet energy objectives while minimizing negative impacts or bolstering other sectors, such as navigation.

However, bringing additional metrics into the analysis complicates the picture. The current major dam on the Myitnge is required to release a minimum flow of 100 m^3/s to support navigation; both option A and option E fall below that minimum flow (Figure 2). Options D and F now appear as potentially providing a balance between the three resources; they are near the maximum for generation and have the best fisheries performance of any option that provides the minimum flow for navigation.

Figure 2. Options for dam development in terms of performance for fisheries and hydropower generation, with performance for navigation flows indicated by color
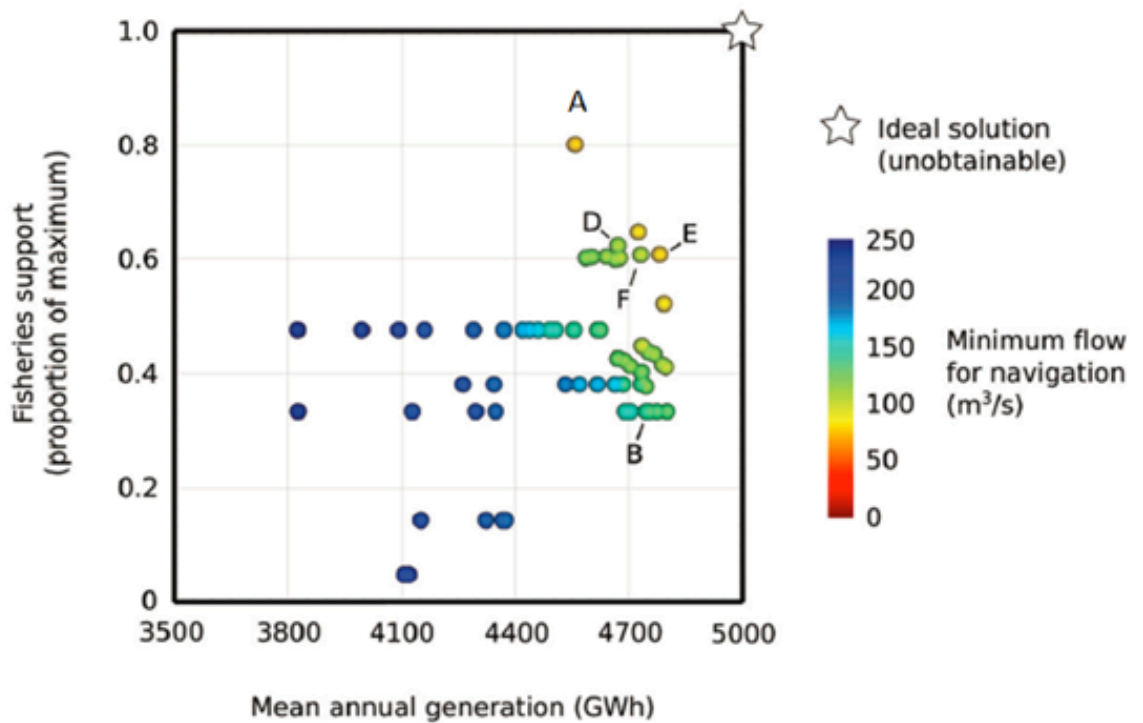
Some of the most important resources for Myanmar cannot be effectively managed at the level of a sub-basin such as the Myitnge.

Considering a fourth metric, investment cost, provides further insight (Figure 3). While D and F are intermediate in the range of investment cost, the two options identified by the G have just slightly less generation, essentially the same fishery performance, but at approximately half the investment cost (and they both can provide greater than the minimum navigation flow).
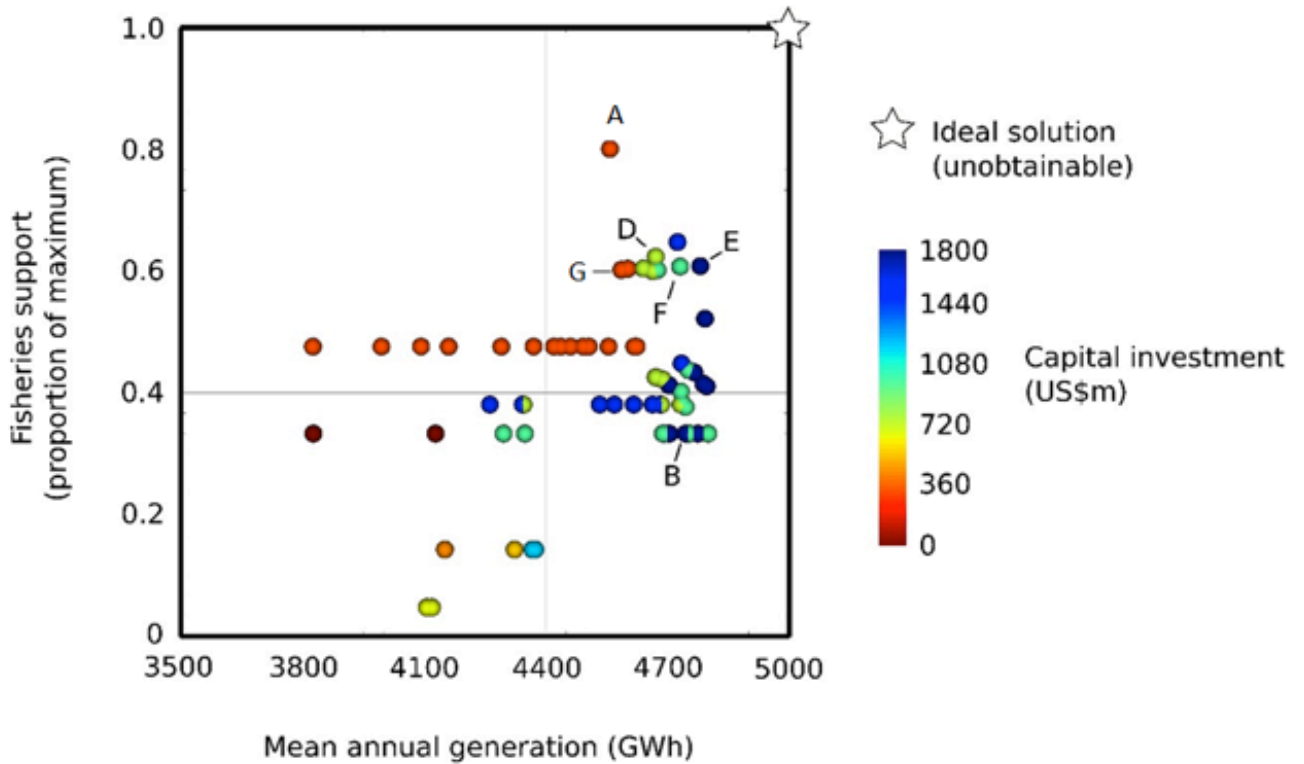
Figure 3. Options for dam development in terms of performance for fisheries and hydropower generation, with performance for investment cost indicated by color.

Finally, some of the most important resources for Myanmar cannot be effectively managed at the level of a sub-basin such as the Myitnge. Many of the most important fish in the Irrawaddy undertake long distance migrations, moving between spawning and rearing habitats that may be hundreds of kilometers apart. Although we did not have the data to model the full set of metrics for investment options in the entire Irrawaddy basin, we could compare generation with impacts on migratory fish habitat. We found that, for a given level of energy development, there was a broad range of impact on migratory fish habitat. For example, if 40% of hydropower potential of the Irrawaddy were to be developed (several multiples of current development), impacts on migratory fish habitat ranged from just a few hundred kilometers of additional impact to 1,500 additional kilometers (Figure 4).

Figure 4. Impacts on migratory fish habitat in the Irrawaddy River basin for various levels of energy development. The red arrow indicates the range of impact from developing approximately 40% of the hydropower potential in the Irrawaddy basin.
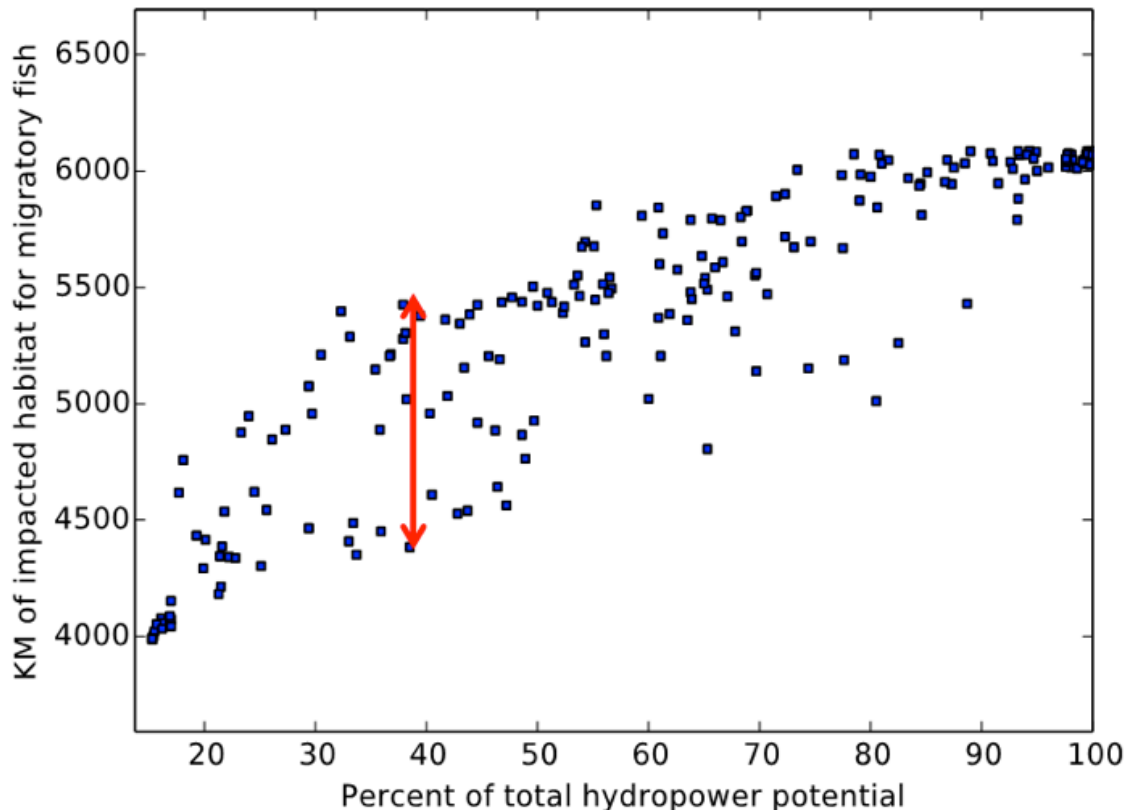
While there are tradeoffs, a system-scale approach can identify "win-win" or "close to win-close to win" options.

Overall, the results illustrate some key points about a system-planning approach:

Tradeoffs between values are inherent in decisions. In most cases, energy development will have some negative impacts (true for energy development in general, not just hydropower). But visualizing tradeoffs allows stakeholders and decision makers to understand the full set of rewards and risks associated with investment decisions over time – this is not possible when only considering a single project at a time.

While there are tradeoffs, a system-scale approach can identify "win-win" or "close to win-close to win" options - those that meet energy objectives but minimize negative impacts or have synergistic benefits for other sectors (e.g. navigation) – or do all of the above. These balanced and diversified portfolios — combinations of site, design, and operation — are highly unlikely to emerge from a set of project-level decisions; they only become apparent through a system-scale approach that considers multiple projects and how their location, design, and operations work together.

This approach is conducive to a transparent and informed approach. By moving away from seeming "black box" decisions, projects that emerge from this process are much more likely to be in the greater public interest.

Myanmar's new government has many decisions to make about energy and development, including hydropower. A system-scale approach — characterized by long-range plans and diversified portfolios — can move hydropower decisions from gambling to investments that deliver broad benefits to the people of Myanmar and serve as a model for sustainable energy development. **SC**

Article

Zen and the Art of Threat and Action Classifications

By **Nick Salafsky,** Foundations of Success; Adam Barlow, WildTeam; and Shawn Peabody, Environmental Incentives LLC.

Credit: joseph14078 via Flickr and Creative Commons

The most geeky, boring and yet fundamental basis of any science is having a common lexicon to describe the elements of the system that you are working with. For example, medical science depends on having common classification systems of both the diseases that patients face and the therapies used to treat them. In the biological sciences, naming and categorizing living things into species, genera, and higher order taxa was the main focus of the field for hundreds of years. Indeed, piecing together classifications often presaged and led to the development of subsequent organizing theories for a scientific discipline. For example, the Linnaean classification system led directly to Darwin's theory of evolution and the discovery of DNA that together are the basis for biology. Likewise, the bottom-up development of the periodic table of elements ultimately led to the models of atomic structure that are the foundations of chemistry.

To this end, in 2007, the Conservation Measures Partnership (CMP) and IUCN released Version 1.0 of both the Direct Threat and Conservation Actions Classifications. These drafts were then updated slightly in Version 1.1 which was published in Conservation Biology 22: 897-911. These classifications have now been adopted by organizations and agencies around the world to describe the work being undertaken by conservation projects and programs at all scales.

Although there is a non-trivial cost to changing a classification system that has been widely used to code data, it is also important to regularly update these systems to take into account new information and thinking. Over the past couple years, a working group of the CMP has been reviewing the existing classifications. CMP is now pleased to announce the release of revised Version 2.0 of both the direct threats and conservation actions classifications.

The Direct Threats Classification has proven to be remarkably robust and as such, has undergone only minor revisions. Key changes include:

• **New Level 2 Threats** - We have added two new Level 2 threats that have been split off from previous Level 2 types. These new threats are:

> 7.4 *Removing / Reducing Human Maintenance*
> 8.4 *Pathogens & Microbes*

• **Reworking of Climate Change Threats** - We have substantially modified 11. Climate Change to reflect our changed understanding of the impacts of climate change and severe weather events on conservation.
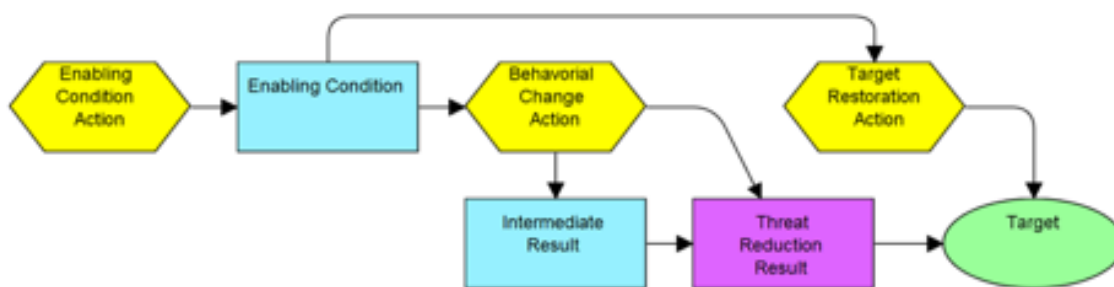
The Conservation Actions Classification, however, has undergone much more substantial revisions. Key changes include:

• **New Level 0** - In addition to the Level 1-3 hierarchical classifications of actions, we have now introduced a higher-order Level 0. As shown in the following diagram, at this highest level, actions can be grouped into:

> A. *Target Restoration / Stress Reduction Actions*
> B. *Behavioral Change / Threat Reduction Actions*
> C. *Enabling Condition Actions*

• **New Action Types** - Whereas Version 1.1 focused primarily on direct conservation actions, the action classification now attempts to encompass all types of activities undertaken by conservation organizations. To this end, we have added new actions at all levels to describe activities such as:

> 6.3 *Land/Water Use Zoning & Designation*
> 8. *Research & Monitoring*
> 10.1 *Internal Organizational Management & Administration*

Although there is a non-trivial cost to changing a classification system that has been widely used to code data, it is also important to regularly update these systems to take into account new information and thinking.

• **Comprehensive Level 3 (Beta)** - Version 1.1 had only examples of Level 3 actions. In this version, however, we are now introducing an initial attempt to create a more comprehensive breakdown of actions at this "species" level. Our ultimate aim is to provide a more detailed way of describing and referencing conservation actions. Although we have done extensive work and some testing of this new Comprehensive Level 3, it is likely to undergo substantial revision and updating in the coming year or two. As a result, we are releasing Level 3 as a "beta version" (this beta designation does NOT apply to Levels 1 & 2) as shown in the following excerpt.

• **Links to CAML** - The theory of change behind each action in this classification can be represented in a generic results chain diagram. We are developing a catalogue of these results chains in the Conservation Actions and Measures Library (CAML) (www.miradishare.org/actions).

Here is an example of the new Level 0 Classification

This column shows the new beta Comprehensive Level 3

CMP Conservation Actions Classification v 2.0	
Classification Levels	
0 1 2 3 (examples, not comprehensive)	**(beta version - subject to change)** **Proposal for Comprehensive Level 3**
B. BEHAVORIAL CHANGE / THREAT REDUCTION ACTIONS	
3. Awareness Raising	
3.1 Outreach & Communications	Raising awareness via... - Reported media - Social media - Ads & marketing - Displays - Art - Performances - Person-to-person engagement - Experiential learning
briefing newspaper reporters on conservation issues, Facebook campaigns, public service radio ads, zoo exhibits about threats to animal habitat, recording conservation songs, producing puppet shows with conservation message, door-to-door engagement, taking children on nature walks	
3.2 Protests & Civil Disobedience	Organizing or engaging in... - Protests - Public identification of wrong-doers - Impeding activities - Sabotage
organizing protest marches against oil drilling, investigative journalism naming & shaming polluting companies, impeding whaling vessels, sitting in trees to prevent logging, sabotaging wildlife traps	
4. Law Enforcement & Prosecution	
4.1 Detection & Arrest	Reducing or deterring illegal behaviors through... - Surveillance - Patrolling - Guarding checkpoints / borders - Carrying out investigations - Establishing/maintaining informer networks - Arrest & interdiction
aerial surveillance of a wildlife sanctuary, community patrolling of a turtle nesting beach, monitoring wildlife trafficking across borders, investigating reports of illegal grazing, setting up informer network against tiger poaching, interdicting an illegal fishing vessel	

These are non-comprehensive Level 3 examples

Developing these revised classifications has been a fascinating exercise that resonates with Robert Pirsig's observation in his classic novel Zen and the Art of Motorcycle Maintenance that the processes at the center of the scientific method – defining classification systems and generating hypothesis – are ironically as much creative arts as they are empirical endeavors. In particular, in coming up with the new comprehensive Level 3 conservation actions, we realized that there is not necessarily one correct answer of how to break a Level 2 action into more detailed subdivisions. The art lies in selecting subdivisions that usefully reflect how conservation practitioners think about the world.

For example, if you think about the theory of change behind the generic Level 2 Outreach & Communications action shown above, it basically involves 1) identifying target audiences and the behavior(s) that you would like them to continue, start or stop, 2) identifying the right message and the right channel to convey the message to your target audiences, 3) implementing the outreach activities, and then 4) hopefully seeing the desired behavioral change and subsequent reduction of conservation threats or improvements in the status of your conservation targets.

This generic theory of change needs to be slightly modified for each of the Level 3 actions. For example, if you are using reported media as your channel, then you have to first convince the reporter and her editors to run the story which will then result in an amplified and hopefully more authoritative conveyance of your conservation message. Whereas if you are using paid ads, then you need to raise the funds to pay for the ads and make sure you can place your messages where your target audiences will see them. And if you are using experiential learning such as sending kids to outdoor education, you may have to wait a decade or more till these kids grow up and start acting on your conservation message. The key here is that by having defined action types, conservation practitioners can hopefully both choose the options that make the most sense for their situation – and share what they have learned about their implementation of the action with others.

At this point, we are confident enough in the utility of the Level 3 Actions to release them as a Beta version. But they will undoubtedly be refined and improved through additional use and testing, in much the same way as the Level 1 & 2 Threat and Action classifications were improved going from Version 1.0 to 2.0 over the past decade. The real test will then be whether they are adopted and employed – and ultimately lead to advances in conservation science. In the end, again echoing Pirsig, conservationists do not define the ideal classification system, but rather conservationists define themselves by the classification system they choose to use. **SC**

Article

Best Birding Apps

By Timothy Boucher, conservation geographer, The Nature Conservancy
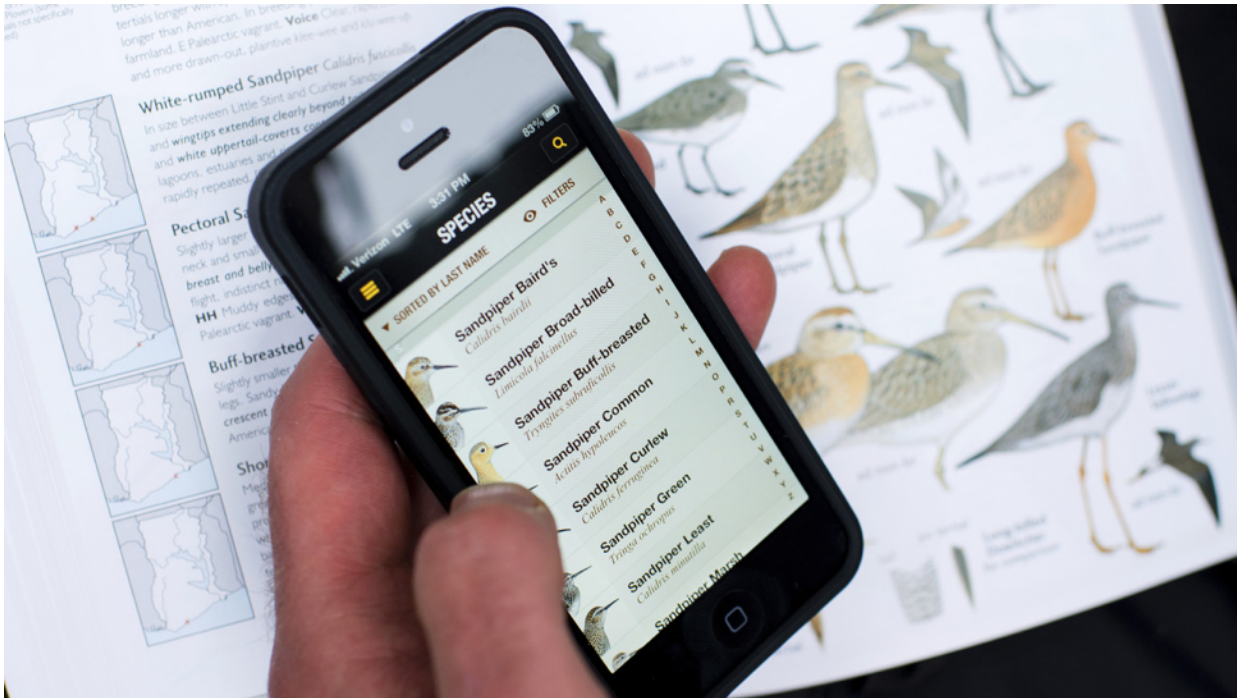
Credit: Dave Lauridsen/TNC

Need an app that helps you identify birds in the field? Don't bother searching for "birds" in any app store. Unless that thrush happens to be angry, those dozens of Angry Bird apps that pop up won't be of any use to you.

So here is my expert take on 10 iPhone birding apps — Audubon Birds, iBird Pro, National Geographic Birds, Peterson Birds, and Sibley eGuide to Birds and two newer additions, BirdsEye (North America), Merlin, Birding in North America, the newish eBird app and the old Kindle app (all are also available on Android phones and the larger, tablet format).

For this review, I will be focusing on the things that birders need for identifying birds in the field:

- Ease of use in finding a bird via image or search text function, for all from novice birders to advance birders;
- The type (photo or painting) and number of images the app provides;
- How easy is it to listen to a song/call through the app (and how many songs it makes available); and
- Whether the app allows you to compare similar birds and in which ways.
- All 5 of these apps offer some bonus features — but generally, I am comparing basic features that all share. Of course, some things are a matter of personal preference, such as illustrations versus photos.

All of these apps need a lot of space (and a WiFi connection) to download (~500 MB+), but then you can use them offline when in the field, which is very nice. With new smart phones having lots of space, this shouldn't be an issue, but older ones could struggle.

Identifying a Bird

A novice birder spots a bird in the backyard and would like to identify it. First, following Boucher's Rules of Beginner Birding, narrow it down — big, small, hawk, warbler, woodpecker, whatever — you need to know a little to get started.

But wait! Audubon Birds is already helping you do that. You can browse by shape (duck-like, hawk-like, perching, etc.). That's pretty nice for the novice.

Merlin treats you like a true novice — and leads you through a series of questions: location (allow GPS use), date (useful for season), size (with a series of useful images), choice of several colors, and what and where the bird was. It then creates a list of possible choices.

Hidden in National Geographic Birds is a way to something similar — filtering the search by color, size, habitat, etc. — that should help narrow your choices down. iBird has the same filter-type list, although a little more hidden under its search function, and Sibley eGuide to Birds also has a similar function under its Smart Search — though not as clever as Audubon's!

Peterson Birds has already fallen behind the pack — it only has a family list that I have to scroll through, with icons. Hmmm…that Grey Catbird that the other apps quickly pointed to is not so easy to find with Peterson.

The new kid on the block — Birding in North America — doesn't help much. In fact, I am not that impressed with it. It gives a hidden drop-down list (a bit like families) and that's about it.

BirdsEye is not really set up for the novice — allowing you to either search for or scroll through birds that have been recently seen in your location (based on eBird), but you really have to know what you are looking at to find it. Likewise, the eBird app is for sending in eBird checklists, not for figuring out what bird you are looking at.

Confirming the Bird

Next, assuming you think you might know what the bird is, how quickly can you find it to confirm? And what type of images are they, how many and (lastly, and the most subjective) how's the quality?

Let's graduate from the catbird to something more challenging — a Wood Thrush. It can be confused with a few other similar thrush species and has a song that can be similar to others too (that is the toughest test). And remember — in all of this testing, time is of the essence. The quicker you can get to a bird, the better!

Perhaps the most

Note: Playing no favorites, I review each app in alphabetical order. Also, the apps do get updated every so often (once or twice a year), but mostly with new images and bug fixes — new feature updates are much rarer.

Audubon Birds

Audubon starts up quickly and has a nifty little search box as the top of the screen. Typing in "wood t" quickly gave me Wood Thrush, and one tap took me to the bird (took about 3 seconds). Nice! I could also browse by family to get there (3 taps and some scrolling) — but quite a bit more slowly.

Once at the Wood Thrush entry, Audubon presents me with four good photos (NOT paintings), with a range of options at the top: map; voice (more on that later); description; similar (more on that later); share and sightings. Voice is VERY important to both the novice and advanced user. Audubon offers 5 recordings for this species! Excellent! Birds don't sing or call the same everywhere or even seasonally.

Audubon also compares the species to 11 others — a good range of choices, in mostly the same habitats — which is good. You don't want to be misled by a grassland bird when you are in the woods. Audubon does NOT give birds with similar songs.

Another thing about Audubon I like, the great use of the eBird data (a hidden bonus feature!). You can search for Nearby Birds or search for a rare or notable bird, both of which are very useful. It can even use your GPS location! And the best part? It is now free!

Birding in North America

The app opens quickly, occupies little space on your phone, and has text and some bird sounds for each bird. That's all I have to say that is good about it. The text, sounds and maps are all pulled from Cornell website — word for word, song for song, map for map. The setup button (top right) gives you tic-tack-toe. Yes, a silly game. The only reason I reviewed this app at all is because it came up when I did a search for "birding" in iTunes.

It would be nice if they even acknowledged they got their information from Cornell. But then again, what can you expect from a company that's dubiously listed as GameWiki. My recommendation? Delete. Or better yet don't even download.

BirdsEye (North America)

BirdsEye is a unique product in that it sources a most of its information directly from eBird (much more so than Audubon) specifically where birds have lately been seen in your region.

Birdseye has recently changed, and is now a global birding tool – so it's useful for outside the ABA region (depending on the quality of data of course). I tested the North America version of it. It has a fairly simple initial interface, "browse birds" the first choice, and typing "wood t" quickly brought up the Wood Thrush (including a small photo-icon) and its associated monthly abundance graph (and a red-line for the present date).

Tap on that and you get a description of the bird. Tap on the photo and you get more and larger photos. Once in the description area, you can share the sighting, view photos people have loaded, read the Wikipedia entry, see latest local sightings (sourced from eBird, which is very nice), and lastly, hear what the bird sounds like when singing. BirdsEye also has a small audio icon at the bottom, which gives you a couple songs and calls.

Note: when you are browsing birds, there are 3 tabs at the top — an "all" tab (in this case 1045 birds), a "recent" tab (birds seen recently in your area), and birds needed for your list (if your list is up-to-date on eBird).

Apart from "browse birds" it also has an option to look at favorite locations, your world and regional list (as on eBird), local hotspot lists, and nearby notable birds (in case you want to chase down a rarity). However, for some reason (probably operator error), I could not get it to work for my life or regional list even though my eBird list is up-to-date.

Bonus feature – BirdsEye allows you to search using the USGS 4-letter alpha/banding code (e.g. BGGN for Blue-gray Gnatcatcher). While this might not seem like much, try typing "Black-and-white Warbler" with your thumbs, not so much fun! It also trains you to use the 4-letter code when using the Birdlog and eBird app; just refrain from using them in conversation — telling others you saw a HOWA, KEWA and WEWA might confuse (and probably annoy) them.

Note the price change of BirdsEye, which has undergone a restructuring. Where you used to make one payment, you now pay less, but have to pay monthly. Most regions are pretty cheap, so it shouldn't be a concern. This might work well for areas outside the U.S., where getting songs/calls especially can be cumbersome (I get mine from the terrific resource: xeno-canto.org).

eBird Mobile App
Originally the BirdLog app, Cornell took it over, revamped it, and made it their own. The key for Cornell and the eBird project was to have a single, free and global data entry app for eBird.

If you use the web version of eBird, this app is a must. I use it a lot for eBird checklist entry — they have made it a lot more internet friendly, and are working on many nice new features, like linking to your individual eBird account and so forth. There are a number of checklist input related functions — including using recent locations, picking a hotspot from a map (you need to be online for that to work), creating your own personal location, and picking a nearby hotspot or searching for one by city or place. You can create a checklist for offline use, but you have to have created a checklist beforehand when online for this to work properly, and setting up future checklists (for trips where you're birding beyond the reach of cell service) is also little clunky. But overall, if you keep a list, and use eBird (if not, why not?), then get this app. It's a no-brainer.

iBird Pro & Ultimate
Next up — iBird Pro — the first birding app on the market! No muss, no fuss; either type in "wood t" or scroll alphabetically or taxonomically. Bingo, quickly to the bird in question — Wood Thrush. It's a single (but decent) painting along with a range map, photos, sounds, similar

species, field marks and other identification tips (bird specs), facts (notes), your notes, ecology, links to Flickr (more photos!), Birdpedia, etc.

There are only two vocalization choices for this species (one song and one call/chip notes, so adequate), but very importantly, iBird serves up two similar sounding birds. Very nice! And iBird also gives the spectrogram for geeky birders who like to visualize the song. 13 similar-looking birds are listed, including some very unlikely European species.

iBird has done quite a few updates over the past year or so — like adding and updating the drawings, and added 3D force touch shortcuts for iPhone. Searching using the USGS 4-letter alpha/banding code (e.g. BGGN for Blue-gray Gnatcatcher) has also been added — just tap the button next to the search box to use it (it cycles through Common name/Band code/Latin name). However, even with all the updates, it's basically the same app (which is nice).

There is now a more pro version — iBird Ultimate! It does smart searching of birds and has overlays of important field marks. Not worth the upgrade to me, but you might consider it if you are a first time buyer.

Kindle

I have included this not because it is a true birding app, but because it can be used as a simple reader of bird field guides. Recently however, some new print/hardcopy guides have come out with a Kindle version (like Birds of New Guinea: Second Edition), and it acts pretty much like the print version of a book — each page (or part of a page) is separate. There is some simple searching of text possible (like any Kindle book). Simple, yet functional.

The other way to use Kindle, if you have many old field guides like I do, is to create a PDF of the guide (either scan it or take photos) and send it to your phone or tablet (dropbox/box is a good option because the PDF is likely be very large) and save it to and open with the Kindle App. Once done, it sits on your phone for you can zoom in on pictures and read text, look at other birds, etc. Interestingly, it actually works pretty well! Especially when traveling to other countries, where there might be more than one field guide, old guides, etc.

Merlin

While this one is free (which is a big plus if you just want to check birding out), it covers 400 of the most common species — which is most of what you can expect to see anyway if you are a novice.

Merlin uses only photos (a good selection), has a good representation of songs and calls (singing and chip notes) of each species (it is from Cornell after all!), and includes a good size map of each species showing ranges in the North American continent south to Panama using different colors for winter and summer ranges.

As previously noted, you are taken through a series of questions and given a list of possible birds to choose from (based, in part, records on eBird). You can also browse all the birds. It has a search input area at the top and an interesting scroll bar of different shapes of birds to choose from, which means that similar birds (think vireos and warblers) appear near each other.

I did find the bar a little annoying if my fat finger strayed onto it while scrolling up or down — I would get a big jump (especially if using my right hand! (Note to self: use left thumb for scrolling!).

A note on the birds not dealt with in this app: this app is aimed at the total beginner / novice. Many people will prefer a more comprehensive guide sooner or later. All in all, it's a great guide for people who are just starting! Bonus Feature – did I mention it's free?

National Geographic Birds
National Geographic opens quickly and an extra tap brings up the text search box, where typing "wood t" brings up Wood Thrush. The layout is neat, uncluttered, with the paintings from the paper field guide. Though small, the illustrations can be enlarged with pinch-zoom. A map and sounds icon appear below the illustrations.

Sounds are adequate, with one song and one call for this species, including the spectrogram. Comparisons with the songs of three other species are available. Under visual comparison, only one species is given, and it is an odd choice — the Brown Thrasher. It is brown, but much larger than the thrushes and a different shape, whereas the other thrushes are much closer in appearance to the Wood Thrush and much more easily confused when seen in typical thrush habitat of dark wooded understory. So points off there.

The Nat Geo app is up to version 3.5 (Dec 2013), and nothing major has been done to it for a while except fixing bugs and correcting data.

Peterson Birds
The Peterson app has gone through a major renovation. That being said, even with a new initial layout, the functionality is still pretty much the same as before. Only two taps needed to get to text search, and typing "wood" gave Wood Thrush as the top choice. A large painting, as found in the paper guide, is displayed, above icons for sounds (only one song), map, nest, ecology and family notes. The very simple similar species section shows only the American Robin — which is nothing like the Wood Thrush. You can also browse species by family icons, where it is easy to compare birds and calls by just tapping on the images, or a plain text list.

Via access through the new layout (bird search or bird browse) you can do some fancy new searches by county, share sightings, export checklists, etc. Illustrations are still the same (from the field guide), but you can now do some nice comparisons with other birds and it has a shortcut for information. Scrolling through the new layout, I found an identification guide to all the undertail patterns of warblers – quite handy! There is also a new function that displays current birds in your neighborhood (it uses eBird data). It has also gone up in price — to $14.99!

Sibley eGuide to Birds
Lastly — Sibley. Two taps (either taxonomic or alphabetic; no fussy scrolling!) to the text search and typing "wood" gets Wood Thrush and an impressive array of large Sibley illustrations for each species to scroll through. On the right are two small, neat icons for voice and a distribution map. The song/call section has six recordings, the most of all the apps. No

sonograms, but most people don't use them anyway. Downside — Sibley doesn't have listed similar species for each species, either visual or aural. In the initial search area, the "comp." button will bring up both visual and aural comparisons. Sibley has the most illustrations, and for many people — especially those who prefer Sibley's artwork over photos — this is a popular choice.

Sibley hasn't had a major update in a while, despite a new edition of the print bird guide. But then again, why mess with something that is working so well?

Cost and an Important Reminder

All these apps are fairly low-cost, so price is really not an issue. As I noted, Merlin is free, but limited to 400 birds. eBird and Kindle are free, as is the plagiarizing app – Birding in North America. BirdsEye is also now free, but has switched to an in-app monthly purchase scheme (depending on region – North America being $2.99 per month, and global $4.99 a month).

One very good app, Audubon, is also free! National Geographic is still $9.99. And Peterson is now no longer bare-bones in features, has undergone a major update, including the price, which has gone up to $14.99.

Sibley, iBird Pro and Ultimate are usually $20 ($40 for Ultimate). But these can be purchased for a lot less if you get them on sale.

Sometimes these apps get discounted to just a few dollars, so keep an eye out for those opportunities, especially in the spring!

Important! On the front page of Sibley, there is a little reminder for all app users: "Please consider the birds and other birders before playing audio recordings in the field." This is to remind you that playing the recording of a bird's call, especially in breeding season, may be harmful if done near the bird in question. And may be illegal in some National Parks. And is always illegal for endangered species. And it will annoy other birders. So just don't do it, ok? **SC**
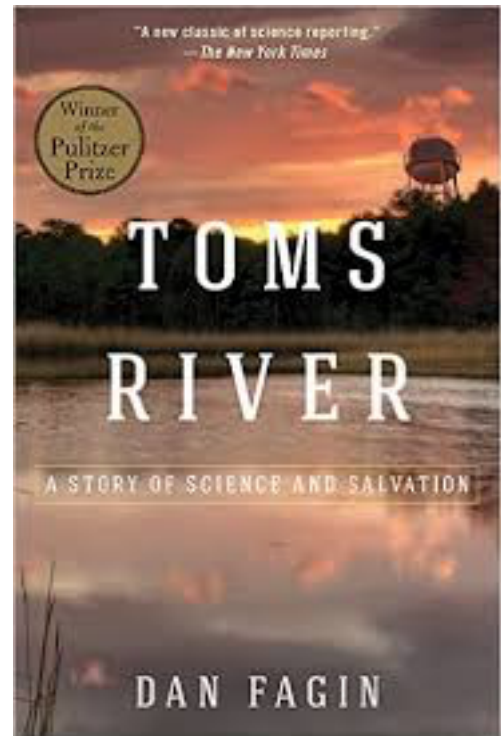
Books
Disasters Fast and Slow

Toms River: A Story of Science and Salvation. By Dan Fagin. Island Press 2015. 576 pages.

By [Charlotte Reemts](), Research and Monitoring Ecologist, The Nature Conservancy

Some environmental disasters are brief, intense events; others unfold slowly, with many small actions leading to a large impact. Dan Fagin tells the story of two disasters, one fast and one slow, in the small town of Tom's River, New Jersey, which was home to a chemical factory for many decades. As was common at the time when the factory was built (but continued for far longer than in most other sites), chemical waste was dumped on-site or into the nearby river from which the town got its name, and also its drinking water. Later, a small-time waste hauler dumped hundreds of barrels of toxic waste on a small farm near the town. Toxins from both sites made their way into the groundwater and eventually the town's drinking water.

Along with these facts, Dan Fagin weaves in threads of other stories: how chemical dyes were discovered (and what makes their waste products so toxic); the doctors who started to link workplace exposure to disease in the 1800s (and sometimes earlier); the development of statistical techniques to understand disease clusters; the environmental laws that regulated (or not) what toxins were allowed in drinking water. Including this background information lifts "Tom's River" from being just an account of childhood cancers in a small community to a broader examination of the history of industrial contamination.

With the recent revelations of lead contamination in Flint, Michigan, public water utilities have been in the news lately. There are some similarities between Flint and Tom's River: local authorities who ignored (or hid) evidence of contamination; state governments that were slow to respond; lone, outsider figures who finally brought the contamination to the nation's attention. In Tom's River, however, those events were the works of decades, not just years. Perhaps that is a sign of progress, although clearly we haven't reached our goal of clean, safe water for everyone yet. **SC**

Books
20th Anniversary of a Legend

Infinite Jest. **By David Foster Wallace. Little, Brown 1996. 1,079 pages.**

By Jeannie Patton, communications lead, LANDFIRE, The Nature Conservancy

Infinite Jest by David Foster Wallace is a lengthy, complex, hilarious, troubling, challenging Mother Of A Novel. Over the course of its 1,000+ pages, topics of addiction and recovery, suicide, family relationships, cross-dressing, entertainment, advertising, film theory, US-Canada relations, teen angst, compassion, love, and tennis keep things rolling along. It's a satiric horror story crossed with existential comedy.

Holding it all together is rich language, off-the-wall humor, and images so clear that you will never be able to un-see them. The novel also draws from and alludes to other texts like Ulysses, Hamlet, Hill Street Blues, the O.E.D., Cheers, Star Wars, M*A*S*H, the works of Heidegger and Derrida, so the more you've read, the more you'll enjoy the jokes.
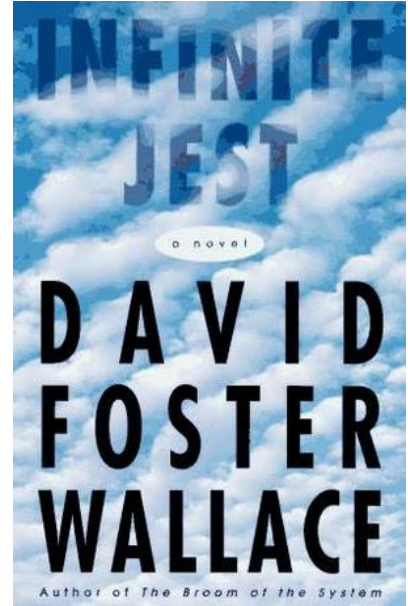
I picked up *Jest* in 1996 (I re-read it this winter) not only because *The New Yorker* gave it a hell of a review but also because two of its foundational conceits made me laugh. First, in the future, corporations are able to buy naming rights to years, and, two, the central plot device, a movie titled Infinite Jest (not to be confused with the novel), is a film so enjoyable that anyone who watches it loses all desire to do anything but keep watching. Viewers are literally entertained to death, making it a perfect quiet weapon of mass destruction for terrorists.

The novel opens in the Year of Glad, sometime after 2011 in our current system. (Other fun years are the Depend Adult Undergarment (YDAU), the Tucks Medicated Pad, the Trial-Size Dove Bar, Dairy Products From the American Heartland, the Perdue Wonderchicken, the Whisper-Quiet Maytag Dishmaster, and the year of the Shitsu 2007 Mimetic-Resolution-Cartridge-View-Motherboard-Easy-to-Install-Upgrade for Infernatron/ Interlace TP Systems for Home, Office or Mobile (sic). One of the latter's ads shouts, "You Shitsu!" Say it out loud.)

Most of the narrative occurs during YDAU, circa 2008-2011, after Johnny Gentle, a former crooner, soft porn actor, and Las Vegas entertainer, is elected President of the Organization of North American Nations, e.g. Mexico, U.S. and Canada. (Once named, it is referred to throughout by its acronym ONAN. Think about it.)

Gentle won based on his promise to "clean up America." Literally. As in dig a giant hole (The Great Concavity) several states wide and deep enough to hold all the trash collected from across the US, and over which a giant fan whirls 24/7, sending the stench to Canada. The money to buy naming rights underwrites the expense of managing The Great Concavity. There are literally smoke and mirrors involved. And espionage.

The action roams over years and locations; most is set in and near Boston's Ennet House Drug and Alcohol Recovery House and nearby Enfield Tennis Academy, whose students have many budding addictions of their own. As *Jest* unfolds, various individuals, organizations, and governments vie to obtain the master copy of the film, including burglars, transvestite muggers, scam artists, medical professionals, pro football stars, bookies, drug addicts (both active and recovering), film students, a group of political assassins, and the Incandenzas, one of the more messed-up families who ever inhabited fiction.

I've read *Jest* twice. My 1996 adventure (at night, after teaching literature to college kids all day) was a lonely one. At 1079 pages with 388 endnotes (some having footnotes of their own) set in font as tiny as the Bible's on pages as thin as gauze, the novel is not for the faint of heart. Folklore has it that most who pick up the book quit after the first 200 pages because, well, it's just all TOO MUCH. Comparisons with the work of John Irving, Thomas Pynchon, and Tom Robbins are the norm.

My recent re-reading was a more cheerful experience, thanks to this: "Read *INFINITE JEST* with a few thousand of your closest friends. In honor of its 20th anniversary, we'll be reading 75 pages each week for 13 weeks, from January 31 - May 2. Join us!" A website was set up (with guides, both human and written) and a Facebook page (Year of Glad); Skype discussion sessions were offered at regular intervals. Twitter. Instragram. Storify. The whole fell swoop -- worldwide. Comrades. Also, there are, literally, groups who form to help each other through post-IJ withdrawal.

That said, many hate the novel. I especially appreciate the July 1996 London Review of Books: "[*Infinite Jest*] is terrible. Other words I might use include bloated, boring, gratuitous, and – perhaps especially – uncontrolled. I would, in fact, go so far as to say that *Infinite Jest* is one of the very few novels for which the phrase 'not worth the paper it's written on' has real meaning."

In 2005, Time magazine included Jest in its list of the 100 best English-language novels published since 1923. As of 2016, worldwide sales of *Infinite Jest* have exceeded one million copies. Take it on when you need distraction from your life. Give it 75 pages a week. You'll be glad you did. **SC**

Books
What Nature Writing Can Be

The Sting of the Wild. By Justin Schmidt. Johns Hopkins University Press 2016. 1,079 pages.

By [Matt MIller](#), Director of Science Communications, The Nature Conservancy

Justin Schmidt might be called the King of Sting: He's spent much of his career researching bees, wasps and ants, including the chemical make-up of their venom. He's traveled to six continents to track down stinging insects. And he's been stung. A lot. His Schmidt Pain Scale for Stinging Insects assigns a pain rating for each sting, and also includes a description of each sting experience that reads like wine tasting notes for pain. And now he's here to share his story, and the story of stinging insects. I've written a blog on this wonderful book and Schmidt previously. In short, read it. It shows how good, how enjoyable, nature writing can be – but you will watch where you put your hands in bullet ant country.

The Story of the Man Who Got Stung for Science

THE STING OF THE WILD

JUSTIN O. SCHMIDT

Books
Climate Change Thrillers

The Windup Girl. By Paolo Bacigalupi. Night Shade Books 2009. 359 pages.
T*he Water Knife.* By Paolo Bacigalupi. Knopf 2015. 384 pages.
By **Mike Beck**, lead marine scientist, The Nature Conservancy

It's rare to put the words 'climate change' and 'page turner' in the same sentence, but Paolo Bacigalupi has pulled it off - twice - in *The Water Knife* (2015) and *The Windup Girl* (2009). These are excellent climate change thrillers about our future world with too little and too much water respectively.

Anyone who has read Reisner's classic Cadillac Desert about the history of water management (or lack thereof) in the US West will be interested to see Bacigalupi's interpretation of how water wars might play out in the future across the Colorado Basin in *The Water Knife*. The issues of water rights and the plays to get them could come straight out of a TNC strategic plan - only ten times more interesting with a weapon wielding enforcer. This is a killer thriller and represents a not entirely implausible future; it feels real if maybe a little too pessimistic.

The Windup Girl is set a couple more centuries in the future in Bangkok; a city below sea level protected from flooding by levees and pumps (hmm, remind you of someplace). The central importance of maintaining seed bank genetic diversity is sure to bring out your inner biogeek and the machinations of agribusiness your inner skeptic. But the most jarring parts of the book are about the windup girl Emiko. Through her, Baigalupi explores the feelings that define us as human and whether we can cross that line with artificial intelligence. OK that's a lot to swallow, but it works.

Bacigalupi's writing is crisp and the premises in both books are compelling. It's also a pleasant respite to be able to talk about climate change at the dinner table without my friends eyes rolling to the backs of their head (again). We need more books like these (*The Water Knife* in particular) that allow us to discuss the future with just enough remove from reality to be fiction (and not politics) and yet close enough that the fear could be real.

Books
About to Fall

*A God in Ruins.* By Kate Atkinson. Little, Brown 2015. 468 pages.

By [Jonathan Adams](#)

In her 2013 novel *Life After Life*, Kate Atkinson introduced readers to the Todds of Fox Corner. While the family seemed conventionally if idiosyncratically British, the novel itself was far from a routine historical account of the major events of the early 20th Century. With stylistic verve, Atkinson hurls her main character, Usuala Todd on a numerous narrative arcs that do not intersect — in various tellings of the story she drowns, marries unhappily, stays single, becomes an alcoholic, and shoots Hitler.

In *A God in Ruins* —not a sequel exactly but a "companion" to the earlier work, according to the author — Atkinson continues the story of the Todd family in rather more but still not completely conventional form. Here the main character is Ursula's brother, Teddy, a heroic R.A.F. pilot in World War II. Atkinson foregoes that narrative fireworks — save for jumping between the war, the 1980s, and the more-or-less present day — but the keen observations and the telling details remain. Exhaustively researched, the book offers a compelling and unsparing account of the lives of fighter pilots defending Great Britain. And lest any fan be left pining, the story has its twists and turns, some more satisfying than others.

Taken together, these two novels offer dazzling storytelling along with a playful and altogether captivating take on the very idea of fiction and the novel. Not really historical fiction and not really experimental fiction either, but rather cross-genre, or better yet, beyond genre.
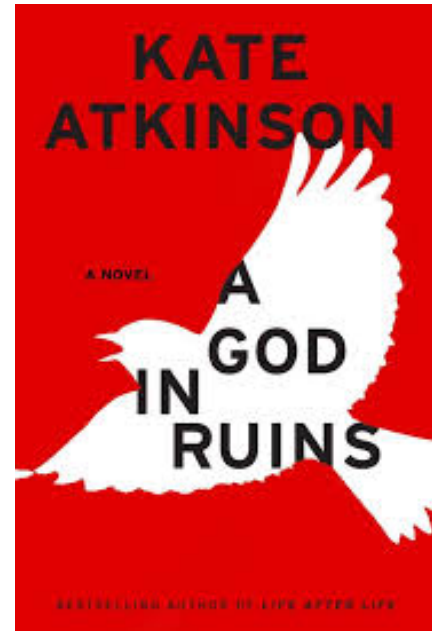
Books
A Must-Read for the Gar Obsessed

Return of the Gar. **By Mark Spitzer. University of North Texas Press. 1,079 pages.**

**By [Matt Miller](#), Director of Science Communications, The Nature Conservancy**

During a short stint in Kansas, I explored a lazy river one afternoon when I saw pointy snouts slashing the surface. Shortnose gar. I tied on a crankbait and was rewarded with some of the most exciting fishing of my life: violent strikes, near-constant action and even the occasional hook up.

I left Kansas and gars, and it seemed I was alone in my enthusiasm. In fact, too many anglers and fisheries managers persecuted gar with extreme prejudice. They are commonly shot with bows and piled on banks to rot, under the mistaken belief that this is saving bass and walleye.

Through social media, I learned that this is changing – there are other "garficionados" who recognize the gar as an "ancient sport fish" that is one of the most fascinating things that swims.

One of those is author Mark Spitzer, who explores the world of human-gar relationships in *Return of the Gar,* his second book devoted to the fish. He catches and raises gar. He attends a cringe-inducing bowfishing tournament. He casts a line for huge (and non-native) alligator gar in a Thailand fishing park, where "river monsters" are stocked and coddled for visiting trophy anglers. He dines on barbecued gar in Mexico, where they are raised for aquaculture. And along the way, he sprinkles in wry observations, commentary and the mandatory gar puns.

Spitzer is a creative writing professor, not a scientist. But his scientific advisor for the book is none other than social media guru, Cool Green Science contributor and gar researcher Solomon David. That alone should make it a must-read for the gar obsessed.
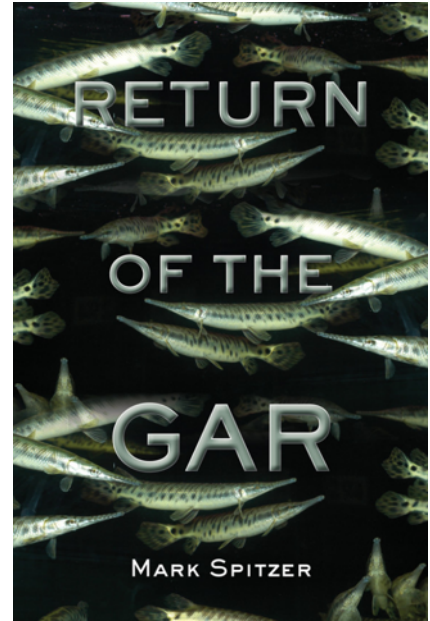
Announcement
Change in Leadership at NatureServe

Arlington, VA (June 9, 2016) – NatureServe announced that after 10 years as President and CEO, Mary Klein has decided to step down to pursue new opportunities. The Board of Directors has accepted the resignation and has begun the search for a new leader.

NatureServe named Lori Scott Interim CEO. Scott, a 16-year NatureServe veteran, will continue to serve as Chief Information Officer and Vice President of the Information Systems Division during the interim.

"We're incredibly grateful for Mary's leadership and the successes that she helped the NatureServe Network to achieve," Board Chair Nicole Firlotte said. "She launched NatureServe as a new organization, serving as the founding Chair of the Board, and has steered it through the process of becoming the leading source of conservation information and expertise. Under her leadership NatureServe has been recognized widely, receiving the prestigious MacArthur Award for Creative and Effective Institutions, the CIO100 Award, and Top-Rated Nonprofit recognition from GreatNonprofits.org, among others."

Firlotte said the Board is seeking a CEO who can serve as a dynamic chief spokesperson to articulate the vision, priorities and value of NatureServe to both external and internal audiences. "NatureServe's role as the leading provider of environmental information has expanded along with its financial requirements," she said. "We need a leader who can take us into the future and continue that expansion."

Through its data, tools and other information resources, NatureServe, a non-profit organization, and its Network Programs create and disseminate high-quality scientific expertise to guide conservation action. The NatureServe Network includes more than 1,000 conservation professionals in the United States, Canada and Latin America, working to ensure that relevant and reliable science drives conservation decisions.

For further information, please contact Erin Chen at 703-908-1841 or erin_chen@natureserve.org.

The job description is below. For more information on the position, contact HR Director Connie Thornton-Brown, Connie_Thornton-Brown@natureserve.org.

JOB TITLE: NatureServe President and Chief Executive Officer
SUPERVISOR: Chair, Board of Directors
LOCATION: Arlington, Virginia

INSTITUTIONAL BACKGROUND

NatureServe, a non-profit conservation organization, provides the scientific information and tolls needed to guide effective conservation action. The organization and its international network of member programs are the leading source for information about rare and endangered species and threatened ecosystems. Operating in all fifty U.S. states, Canada, Latin America, and the Caribbean, the information developed by NatureServe is used by all sectors of society to make vital decisions regarding management of natural resources.

NatureServe carries on a legacy that began at The Nature Conservancy (TNBC) who established the first state heritage programs, and over three decades — with help from both public and private partners — built a network that became recognized for the most complete and detailed biodiversity information, and relied upon by government agencies, corporations, and the conservation community. NatureServe, the membership organization for this network, was established in 1999 under the name Association for Biodiversity Information. By 2001, the organization had evolved into its present form and TNC, who had provided scientific and technical support to the membership network, transferred responsibility for upholding the scientific standards to NatureServe.

Today, NatureServe's network of member programs consists of seventy-four independent natural heritage programs and conservation data centers in the Western Hemisphere, with some 800 scientists. NatureServe has a core staff of nearly one hundred individuals and annual operating budget of approximately $10M. Headquartered in Arlington, Virginia, the organization also operates field offices in four U.S. locations and Canada.

THE POSITION AND RESPONSIBILITIES

NatureServe is in a position of transitional growth and requires an exceptional professional to lead, define, and implement future direction of the organization. Reporting to the Board of Directors, the President & CEO will be responsible and accountable for the strategic, programmatic, fundraising, financial, and management operations of the organization. He/She will act as the chief spokesperson for the organization to articulate the vision, priorities and value of the organization to internal and external partners. The President & CEO will provide leadership to the Board and staff in defining strategies, raising funds, and engaging the member network.

The President & CEO will work in collaboration with the Board on matters of governance, mission, and strategic objectives. As primary liaison between the Board and the staff, the President & CEO will ensure that objectives are executed in a manner consistent with the mission of the organization.

QUALIFICATIONS AND KEY COMPETENCIES

The new President & CEO will be a strategic and visionary leader with experience in the non-profit sector. He/She will have strong knowledge of science and conservation and display credibility in the field while also possessing a keen understanding of technology and data management practices and tools. He/She must be able to define and articulate the vision and mission of the organization and convene others around that vision to enhance the organization's value in the marketplace. He/She will possess the leadership skills necessary to carry out the organization's priorities, manage and inspire the creative and competent staff and member programs, and have a legitimate affinity for the values and mission of NatureServe.

Key competencies include:

Setting Strategy

The successful candidate will have a clear and compelling vision of the challenges facing conservation and understand the importance and need for information to face those challenges.

He/She will bring the experience and ability to communicate this vision in bold and persuasive terms for fundraising and internal communication purposes.

The new President & CEO will anticipate future business opportunities, as well as obstacles and have the expertise to develop strategies to address such issues and take appropriate business risks.

He/She will have a demonstrated record of sound judgement as it pertains to making recommendations to the Board of Directors and managing the network member programs.

Executing for Results

It will be critical that the new President & CEO have experience driving results and impacting change. He/She will bring a track record of responsible fiduciary management, understanding of non-profit accounting, and demonstrated success in execution of strategies.

He/She will have a track record for aggressive fundraising to support programmatic initiatives, as well as building financial stability through unrestricted or endowment gifts.

The successful candidate will have proven experience in designing and implementing creative and effective marketing programs with significant revenue generating outcomes.

He/She will work with members of NatureServe's senior staff to develop a strategic business plan to support a customer driven and science-based operating model. The successful candidate will have experience necessary to engage the membership to work collaboratively in pursuit of aggressive objectives and organizational growth.

He/She will have a track record as a decisive leader and demonstrate the ability to pursue objectives despite obstacles presented in a competitive fundraising environment.

Leading Teams

He/She will work closely with the senior leadership of the organization with specific focus on areas of network support, information systems, programs, and science. This will include building and strengthening internal staff to operate more collaboratively both internally and within the member network, which will be measured buy his/her experience to develop strong and diverse teams.

Building Relationships & Using Influence

The ability to impact, develop, and strengthen key strategic relationships is paramount to the success of NatureServe's new President & CEO.

As chief spokesperson for the organization, he/she will have credibility and experience ti solidify NatureServe within the international conservation community and ensure the organization is forefront in the area of information technology and data management.

The successful candidate will have a persuasive and dynamic communication style that will be essential in working with donors and conveying the importance and value of the organization to external constituents.

He/She will communicate with energy and enthusiasm about the mission of the organization.

Personal Competencies

The new President & CEO must be a leader with interpersonal acumen, motivation, and intellect to complement the objective and mission.

He/She will demonstrate the analytical and conceptual skills required, as well as the curiosity and learning agility necessary.

The successful candidate will have unquestioned personal and professional integrity, a healthy ego, and confidence to lead a strong and intelligent team.

He/She will be culturally astute and display a sense of humor. The new President & CEO must have energy and endurance and show focus and commitment to the work of the organization and unique challenges and opportunities if currently faces.

COMPENSATION

Compensation for this position has been designed to attract a person of significant achievement.

Drinking from the Fire Hose

A quick and entirely subjective monthly roundup of interesting articles, websites and other experiences collected by your editor. Send your suggestions for future roundups to pangolin19@gmail.com.

1. The passing of a keystone ecologist. Robert Paine shaped our understanding of nature in fundamental ways and he influenced generations of ecologists with hisinspirational teaching. He died in June, at age 83. His obituary is here, a tribute from Peter Kareiva is here, and an illustration of his impact (understated, since it dates from 1999) is here.

2. Robert Paine was, among other things, a brilliant field ecologist. So this article on the current state and future prospects of field education is a fitting companion to the Paine testimonials. In short: college students, like most everyone else, spend way too much time indoors. Maybe Pokémon Go is the answer. No, seriously.

3. Amazing photos of a superpod of sperm whales. The entire Biographic website, from the Cal Academy of Science, is worth a lengthy visit as well.

4. Is science doomed? No, probably not. But here are seven big challenges. On the other hand, maybe there is no scientific method anyway.

5. Some new or at least potential obstacles in the way of rational climate policy: Mike Pence, the new VP nominee for the GOP, has long been an outspoken champion of coal. And in one of her first official acts as Prime Minister, Theresa May shut down the UK Department of Energy and Climate Change.

6. Have we crossed a boundary? According to new research on biodiversity loss, yes: Across 65% of the terrestrial surface, land use and related pressures have caused biotic intactness to decline beyond 10%, the proposed "safe" planetary boundary. Time Magazine calls it an "ecological recession."

7. If you've been to New York lately you may have heard of, or even taken a turn on, the Highline, the elevated park built on an abandoned railroad spur in Lower Manhattan that has quickly become a beloved city icon. This summer, an even larger renovation will open: a 10-acre park on Governor's Island, in New York Harbor, transforming an old military installation into new green space. Ferries daily.

8. When the news gets to be too much, a far too common occurrence it seems, you can always go watch the bear at Brooks Falls, without leaving your desk. **SC**

New Conservancy Publications

Conservancy-affiliated authors highlighted in bold.

Please send new citations and the PDF (when possible) to: science_pubs@tnc.org.

The complete, searchable database of over 2,000 journal articles and book chapters authored by TNC scientists is available on the Conservation Gateway.

Kozak, J.P., M.C. Bennett, **B.P. Piazza**, and J.W.F. Remo. 2016. Towards dynamic flow regime management for floodplain restoration in the Atchafalaya River Basin, Louisiana. Environmental Science 64: 118-128.

Krueger, L., 2016. Government Commitments for Protected Areas: Status of Implementation and Sources of Leverage to Enhance Ambition. In L. N. Joppa, J. E. M. Baillie, & J. G. Robinson, eds. Protected Areas: Are They Safeguarding Biodiversity?. Chichester, UK: John Wiley & Sons, Ltd.

Marks CO, Muller-Landau HC, Tilman D 2016. Tree diversity, tree height and environmental harshness in eastern and western North America. Ecology Letters 19, 743-751. DOI: 10.1111/ele.12608. https://www.researchgate.net/publication/301944881_Tree_diversity_tree_height_and_environmental_harshness_in_eastern_and_western_North_America

Neill, C., M. M. Wheeler, **E. Loucks**, A. Weiler, B. Von Holle, **M. Pelikan, T. Chase**. 2015. Influence of soil properties on coastal sandplain grassland establishment on former agricultural fields, Restoration Ecology 23: 531-538

Wheeler, M. M., C. Neill, **E. Loucks**, A. Weiler, B. Von Holle, **M. Pelikan, T. Chase**. 2015. Vegetation removal and seed addition contribute to coastal sandplain grassland establishment on former agricultural fields. Restoration Ecology 23: 539-547. **SC**