Subject: Re: global risk updated results
From: rbuxton <Rachel.Buxton@colostate.edu>
Date: 2020-03-11, 07:29
To: Allison Binley <AllisonBinley@cmail.carleton.ca>, Richard Schuster <richard.schuster@glel.carleton.ca>, "Tulloch, Viv" <v.tulloch@ubc.ca>, Joe Bennett <JosephBennett@cunet.carleton.ca>, Jeffrey Hanson <jeffrey.hanson@uqconnect.edu.au>, Jeremy Pittman <jpittman@uwaterloo.ca>

Hi all,

I've had a first crack at the draft. What an incredible amount of work you've pulled together, Richard, well done. Also - super neat results. I really like the hopeful message about how incorporating uncertainty can fit within the post-2020 protection targets. I think it would be worth featuring this in the abstract - I've made an effort to cut down words so you can move it up, if everyone else agrees.

Sorry it's a little messy - I tried to shuffle the introductory material around to minimize repetition. This might be me being slow, but the wording in the results is confusing for a non-spatial prioritization specialist. When you talk about percentages, perhaps you can try to clarify what you mean - the percent increase in protected area required to meet the 30% target for vertebrates? The percent increase in protected area above baseline required to meet the 30% target for vertebrates? Also - is it true that some of the scenarios with uncertainty incorporated require less protected area to meet the target than baseline? If so, this might be a result worth highlighting and discussing. I'm still trying to wrap my head around why this would be the case - because new habitat is created for some species under climate change? Because land-use change is predicted to be more forested/natural than ag in some places in the future?

Just an idea for the results - what if we related the %variation in PA needed between scenarios to the different amounts of uncertainty. You do this informally for Libya and Indonesia, but what about doing this in a quantitative way? E.g., the relationship between countries probability of novel climates (or is it extreme climates now?) versus variation in PA between scenarios; predicted increase in X land-use type (e.g., agriculture) versus variation in PA between scenarios; and socio-political uncertainty versus variation in PA between scenarios. Happy to discuss more, but might help discuss how these various sources of uncertainty affect results.

Thanks again - looking great!

Rachel

Dr. Rachel Buxton
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From: Allison Binley <AllisonBinley@cmail.carleton.ca>
Sent: Monday, March 9, 2020 10:16 AM
To: Richard Schuster <richard.schuster@glel.carleton.ca>; Tulloch, Viv <v.tulloch@ubc.ca>; Joe Bennett <JosephBennett@cunet.carleton.ca>; rbuxton <Rachel.Buxton@colostate.edu>; Jeffrey Hanson <jeffrey.hanson@uqconnect.edu.au>; Jeremy Pittman <jpittman@uwaterloo.ca>
Subject: **RE**: global risk updated results

Hi Richard,

I've attached the draft with my edits/comments. Feel free to incorporate or ignore as you see fit. Happy to discuss further. Looks great!

Allie

From: Richard Schuster
Sent: March 3, 2020 3:54 PM
To: Tulloch, Viv; Joe Bennett; rbuxton; Jeffrey Hanson; Jeremy Pittman; Allison Binley
Subject: Re: global risk updated results

[External Email]

Hi all,

I hope this is now a 'feature complete' (i.e. all input layers are finalized) version of our ms attached. I went ahead and updated all results and fleshed out the text, so that all sections are pretty much present, except for a punchy concluding paragraph and the maths of the multi-objective function.

I was hoping to ask you all to have a close read, tear apart and edit as you see fit and once that's done we can either have a call about the paper, or if we mostly agree on things, I can take your edits, incorporate them and send to the bigger author group for their input.

Jeff, any chance you could work your magic again and provide the maths for the multi-objective formulation?

Thanks,
Richard

On 2020-02-18 12:35, Tulloch, Viv wrote:

> Hi Richard
> Yep agreed - I think we can much more easily justify the abundance metric than the previous weighting. Nice find Allie.
> Cheers
> Viv
>
> Sent from my iPhone
>
> > On 18 Feb 2020, at 10:45 am, Richard Schuster <richard.schuster@glel.carleton.ca> wrote:
> >
> > Hi all,
> >
> > Sorry for the slow response. I wanted to get an updated draft done before I respond, but Allie just solved our land use class weighting problem!
> >
> > This paper will be doing the trick for us: https://www.nature.com/articles/s41559-017-0234-3
> >
> > From Allie: *They actually used the PREDICTS data but linked each of the Verberg land use categories to potential biodiversity loss/gain for each - "The results allow for estimates of biodiversity loss per land-use intensity class relative to a natural unimpacted baseline." Not sure if this is overly simplistic, but my thought was that you could probably base your threat score off of this, and this paper and others would land support. I've attached the supplemental table with the biodiversity "scores" per land use (table 3).*
> >
> > I suggest we ditch our current weighting that I just came up with and use the abundance column of Table 3 in the attached for the land cover raster. We can focus on the middle of the road, 2050 raster for this and be done with it. This way we can just point to the published paper for this and avoid reviewer comments along the lines of 'you just made this up'.
> >
> > What do you all think? If you think this is the way to go, I can update the analysis and run things again for a hopefully pretty close to complete set of results. If results don't change much, I should be able to send around a draft shortly after the analysis is complete.
> >
> > Thanks,
> > Richard
> >
> > On 2020-02-07 12:52, Joe Bennett wrote:
> >
> > > Hi Richard,
> > >
> > > These results seem good to me, and really interesting. As long as we're OK with everything, then they seem intuitive to me.
> > >
> > > I agree that the weighting will need to be well justified. It's tricky because we need to deal with it and I think what is proposed is quite reasonable. But I wonder about how it would be received by a grumpy reviewer. I wish there were something we could do that was a bit more nuanced - like a model between human footprint and land use and using some predicted value (but I recognize that'd be circular). I've thought about it a fair bit but haven't gotten anywhere satisfying at all.
> > >
> > > Thanks a lot for doing all of this! I really appreciate it.
> > >
> > > J.
> > >
> > > -----Original Message-----
> > > From: Richard Schuster <richard.schuster@glel.carleton.ca>
> > > Sent: February 1, 2020 12:01 PM
> > > To: Rachel Buxton <rachel.buxton@colostate.edu>; Joe Bennett <JosephBennett@cunet.carleton.ca>; Jeffrey Hanson <jeffrey.hanson@uqconnect.edu.au>; Tulloch, Viv <v.tulloch@ubc.ca>; Jeremy Pittman <jpittman@uwaterloo.ca>
> > > Subject: global risk updated results
> > >
> > > [External Email]
> > >
> > > Hi all,
> > >
> > > It's taken me a while to get to this, given the new project that I started in January, but here we are.
> > >
> > > I have now expanded the objectives by the base objective using area, which brings us to a total of up to 4 objectives in one scenario.
> > > The naming convention is:
> > > S = socioeconomic
> > > L = land us
> > > C = climate
> > > A = area
> > >
> > > The following four digits are binary code, representing inclusion (1) of an objective. In the country summary we also have another flag (F = false/T = true) indicating if the hierarchy from the four digit binary code has been flipped or not. As you will see from Table 1, the hierarchy matters here. I personally like the hierarchy of S > L > C > A as I think its easy enough to argue, but please let me know your thoughts.
> > >
> > > As for the cost/risk layers, I am currently using:
> > >
> > > S = mean score from World Bank (Rachel, Jeremy, I still need text on that layer from you please) L = SSP 2 scenario change in threat score metric based on my weighting (after emailing with Peter V, I'm currently looking into ways to defend our weighting) C = Frank LaSorte layer representing extreme heat events, which he thinks would be a more appropriate metric than climate velocity A = constant of 1 for each pixel
> > >
> > > I will start working on incorporating everyone's comments now and move forward with the writing, under the assumption that what I have described here is what we will be using. Please let me know if you think we need to make changes, so I can incorporate them. Other than that, if anyone wants to help with the writing, preparing outputs such as figures and tables, or finding justification for our choice of land use weights, please let me know.
> > >
> > > Thanks,
> > > Richard
> > >
> > > --
> > > Richard Schuster, Ph. D.
> > >
> > > Research Scientist, Carleton University
> > > Conservation Prioritization Consultant, Nature Conservancy of Canada Adjunct Professor, UNBC
> > > Email: richard.schuster@glel.carleton.ca
> > > Web: https://richard-schuster.com/
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> > > Ph: 250-615-2321
> > >
> > > This email contains links to content or websites. Always be cautious when clicking on external links or attachments. If in doubt, please forward suspicious emails to phishing@carleton.ca
> > >
> > > -----End of Disclaimer-----
> >
> > --
> > Richard Schuster, Ph.D.
> >
> > Research Scientist, Carleton University
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> > <41559_2017_234_MOESM2_ESM.xlsx>

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---Attachments:

global_risk_ms_AB_RTB.docx	1.3 MB