

Here I am suggesting for the first time (see last paragraph) to use occurrence records for a workflow to create the Area of Habitat (AOH) of species:

Unprotected birds of the Americas

📎 23 ▾ 🗄

📘 You forwarded this message on Tue 2022-07-12 11:44 AM

RP

Ruben Palacio

To: Dan Lebbin <dlebbin@abcbirds.org>; David Wiedenfeld <dwiedenfeld@abcbirds.org>; Amy Upgren <aupgren@abcbirds.org>; STUART PIMM <stuartpimm@me.com>; Clinton Jenkins <Clinton.Jenkins@gmail.com>

👍 ↶ ↷ ↸ ⋮

Fri 2018-09-14 5:33 PM



Good afternoon,

I was able to download all occurrence records for the Hoary puffleg from <https://www.gbif.org/>. It contains data from museum species, eBird, and other observations.

With this new information, I am attaching a new map for our now familiar hummingbird. I filtered the occurrences and left only the known localities for the species. The map shows that the birdlife map does not represent well the species range (Please note the forest cover layer is clipped to the left, because is a portion of a satellite tile).

I suggest that an approach we can use to obtain better estimates of the Area of Habitat (AOH) for bird species in the Americas is to use these records and draw a better extent of occurrence, then refine the ranges.

Have a good weekend,
R.

DL

Dan Lebbin <dlebbin@abcbirds.org>

To: Ruben Palacio; David Wiedenfeld <dwiedenfeld@abcbirds.org> **+3 others**

👍 ↶ ↷ ↸ ⋮

Fri 2018-09-14 8:53 PM







Great job Ruben.

This confirms what we suspected, that your forest plus elevation map better captures the range than the status quo range map.

-Dan

⋮








Stuart thinks this is an isolated case and not a common feature of expert range maps:

 STUART PIMM <stuartpimm@me.com>     
To: Ruben Palacio Sat 2018-09-15 1:58 PM

I think you need to add areas to the left, until they are excluded by being of too low an elevation. That will certainly add tiles (sorry!) but it shouldn't extend the green too far. Indeed, one could get a good idea of just how far by showing the lower elevational boundary.

I want us — you taking the lead — to write something to Birdlife and to IUCN pointing out the problem. I'll help, of course, but I want the figure to be as convincing as possible.


S


 David Wiedenfeld <dwiedenfeld@abcbirds.org>      
To: Ruben Palacio; Dan Lebbin <dlebbin@abcbirds.org> **+3 others** Mon 2018-09-17 10:38 AM

Ruben—
Yes, much nicer than the BirdLife map. Are the points at the southern end that are also outside the green area also a result of truncation by a satellite image tile? This still shows that at least 6 records (~20%) are from outside the green area, although that could of course be the result of truncation at the edge of an image tile. I assume that almost all of the points would be in the green area if the satellite image coverage were complete. It looks really good.


David A. Wiedenfeld, Ph.D.
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Here I am suggesting a first approximation to the workflow:

 Ruben Palacio
To: David Wiedenfeld <dwiedenfeld@abcbirds.org> **+4 others** Mon 2018-09-17 10:56 AM

David,

It's exactly as you say. At first I only used satellite tiles to cover only the birdlife range polygon.


Based on this, I would suggest we can do the following, will talk to Stuart about it:

- 1 - Draw better range maps (Extent of Occurrence) based on known localities for all bird species in the Americas. There are scripts available to do so, but some manual work is required.
- 2 - Get Area of Habitat (AOH) by refining this better range maps from step 1.
- 3 - Calculate the amount of wild + protected for each species within the Area of Habitat (AOH). At present the values we are using are based on the faulty birdlife range maps, so I assume the present values are not very accurate.

Best,
R.

...

This is a key email: Stuart says it just not possible to do such workflow.

 STUART PIMM <stuartpimm@me.com> Mon 2018-09-17 11:16 AM

To: David Wiedenfeld <dwiedenfeld@abcbirds.org>
Cc: Ruben Palacio; Dan Lebbin <dlebbin@abcbirds.org> **+2 others**

Over the years, Clinton, my group, and I have looked at a lot of range maps. I'm fairly certain this is an exception, a mistake by someone not paying attention to elevation.

Building new EOO's is just not an option.

S

And Stuart definitely did not wanted to go that route:



Ruben Palacio

To: STUART PIMM <stuartpimm@me.com> **+1 other**

Cc: Dan Lebbin <dlebbin@abcbirds.org> **+2 others**



Mon 2018-09-17 11:31 AM

Well, building new EOO's was the approach used for the Colombia Red book that I understand you like, because they found the birdlife polygons to be off!

Would be nice to know what did you like about this particular work Stuart.

Thanks
R.



STUART PIMM <stuartpimm@me.com>

To: Ruben Palacio

Cc: David Wiedenfeld <dwiedenfeld@abcbirds.org> **+3 others**



Mon 2018-09-17 11:36 AM


First, we can't do what those two superb books did for all of the Americas.


Second, there are errors of omission and commission. Much of the problem with BirdLife maps has to do with commission — they put the birds in the places where they cannot be either because the elevations are wrong or the habitat isn't there.

This map also shows massive errors of omission from areas where it clear does occur. We can readily check the other target species for such errors in the way we did for this one.

S

Even one of his most important collaborators, Clinton Jenkins, thought the problem with that map was an isolated case:

 Clinton Jenkins <clinton.jenkins@gmail.com> 👍 ↶ ↷ ↲ ⋮
To: STUART PIMM <stuartpimm@me.com> Mon 2018-09-17 12:38 PM
Cc: Ruben Palacio; dwiedenfeld@abcbirds.org **+2 others**



That particular maps has the hallmarks of a careless re-projection or incorrect datum.


Ruben, can you double check that how the map appears online, what you downloaded, and where these points are plotting out are all matching and with correct projections/transformations? I can totally believe a map from BirdLife has this problem, but we need to be 100% sure it's not something on our end is causing the dislocation.

Clinton

⋮

Clinton N. Jenkins
Professor, IPÉ - Instituto de Pesquisas Ecológicas
www.ipe.org.br
www.BiodiversityMapping.org

Vice President, SavingSpecies
www.SavingSpecies.org

 Ruben Palacio 👍 ↶ ↷ ↲ ⋮
To: Clinton Jenkins <clinton.jenkins@gmail.com> **+1 other** Mon 2018-09-17 2:42 PM
Cc: dwiedenfeld@abcbirds.org; Dan Lebbin <dlebbin@abcbirds.org> **+1 other**

Hi Clinton,

That is a good point. We checked with Stuart already, and I have just checked again with the same results.

I will do the same for other species too.

Best,
R.

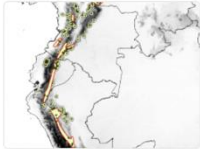
⋮

Later in meetings with Stuart, he suggested I had to do the same comparison with a lot more species, to prove it was not an isolated case. I am still suggesting to use occurrence points.

Birds of the Americas - work so far and a way forward 📎 1 ▾

RP Ruben Palacio 📧 ↶ ↷ ⋮

To: STUART PIMM <stuartpimm@me.com>; David Wiedenfeld <dwiedenfeld@abcbirds.org>; Amy Upgren <aupgren@abcbirds.org>; Dan Lebbin <dlebbin@abcbirds.org>; Clinton Jenkins <clinton.jenkins@gmail.com>; Natalia Ocampo-Peñuela <ocamponata@gmail.com>; p.negret@uq.edu.au Mon 2019-02-11 10:12 AM



Good morning all,
and sorry for the long email, but please do read carefully. I hope you will enjoy the info!

The work so far:

After much effort I have compiled a set of maps - showing the birdlife ranges v.7.0 (in red) and species records (black dots) over a digital elevation model. I've done this for 2,568 species of the Americas. The rest are widespread species (>1 M sq2) or had no records whatsoever.

You can download the maps here (there is also an excel file with the names in both scientific and english):
https://drive.google.com/open?id=180scKT4DcA87EduqNhFz_BoSGEAN8c8

Species records were obtained from gbif.org, which contains eBird records. **Important:** *The species records shown in the maps have been filtered to keep only those that fall within the elevational range of the species.* I also cleaned obvious geographical outliers with several r packages, but still there might be some. If you notice some species that ranges and records don't match at all, please let me know!

In my view (but see it for yourself!) the birdlife ranges are skewed to the bad side - some are good, many are bad, some are just terrible. It is clear that within the polygons drawn by birdlife there are many commission errors, which Natalia and Stuart have shown in several papers. *BUT, there are massive omission errors as well.*

Searching for a way forward:

So, we are doing this because we want better estimates of what % species have within wild plus protected areas in the Americas. At a global scale (Stuart's recent paper) the birdlife maps work fine, but the narrower the extent these errors are more problematic.

Because the America's are still a large area, improving the birdlife ranges in some sort of automatic way will work fine - we can take some small omission + commission errors, but still will be a vast improvement. After we select the final list of species that are falling through the cracks, then we can study their ranges much more carefully and with more detail to make sure we have actionable results. So, our analysis is done at two different scales.

I have flirted with several options to improve the ranges, and one option was proposed by my colleague Pablo Negret (Queensland University, Australia, here on the email). He has written a script that expands the birdlife ranges by buffering species records and joining them to the original polygon (see attached example for Wattled Guan, a particularly terrible map from Birdlife). Then we can refine this updated ranges.

I hope you guys can browse through the hundreds of maps I have sent, and help come with suggestions to move our analysis forward. What protocol should we use? there are birdlife ranges that are ok, should we keep those? how do we know what is good, bad, and ugly?

Again, apologies for the long email.
Rubén.

In this email from American Bird Conservancy (ABC), the tension is evident between my desire to do a new workflow, versus the needs of ABC.

RE: Birds of the Americas - work so far and a way forward

 You replied on Tue 2019-02-12 1:51 PM



Dan Lebbin <dlebbin@abcbirds.org>

To: Ruben Palacio; STUART PIMM <stuartpimm@me.com> +5 others



Mon 2019-02-11 3:46 PM

Hi Ruben,

We are greatly looking forward to meeting tomorrow and continuing this exciting collaboration!

I downloaded all the maps you sent and browsed them quickly. They clearly show that the BirdLife maps have accuracy issues of both commission and omission that have long concerned us, - but we already knew that. The Wattled Guan map showing a buffer around GBIF points along with the BirdLife map does not fully solve either the problem of commission or omission. I think the original plan to remap the range and clip it by elevation and habitat cover remains the best course (you had us convinced!). I am also not so concerned about Wattled Guan, not because the range maps are accurate (they are not, particularly in Colombia), but because I know this species is widespread and protected within a number of large protected areas and won't be super high on the list of under-protected species in the Americas.

To remind us of what I think our common purpose here is and to focus discussion tomorrow, our main needs we agreed to are as follows:

1. Reassess **ranges** of the birds (particularly the EN, CR species) by taking the GBIF records to create a polygon and then trim this by habitat/forest cover and elevation as Ruben and Stuart described previously.
2. Overlay these new maps with the WPDA and Wild+ areas to determine current extent/**level of protection**.
3. Identify and rank **under-protected species** (GAP species, particularly EN and CR birds, but if VU or lower ranked taxa should be bumped up higher then this would be interesting)
4. Identify and **map the places that if protected would provide some minimum level of protection** for the under-protected birds of the Americas, and a vision for the frontline defense protected area network needed to prevent habitat-loss driven extinctions (GAP areas)
5. **Promote and implement protection for GAP species in the GAP areas** where protection is most needed.

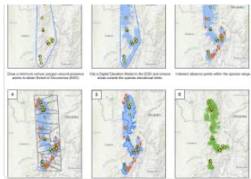
The thousands of maps produced show the BirdLife ranges (not adequate) and GBIF points. Last we spoke in December, we were expecting to see at least one map showing #1 complete above, such as for Golden-ringed Tanager. Has this been done?


We can discuss how to make the maps better (#1), but I think this is not where ABC lends the most value. I hope we can look at the whole process #1-5 above. Also, ABC is gearing up to implement protection (#5) for more of these species, starting with ones that will almost certainly fall out as high priority. We now have an active project for Lilacine Amazon matched by Rainforest Trust and implemented on ground by Jocotoco Foundation. We are gearing up to expand protection at Rio Canande Reserve in Ecuador for Choco endemics which will match funding from ICFC. We are seriously exploring the creation of an RPPN for Kaempfer's Woodpecker in Brazil with Instituto Araguaia to match funding they have from IUCN-NL. We are talking with WLT about protection possibilities underway for the Blue-throated Hillstar in Ecuador led by NCI. We have additional new projects in development with ECOAN in Peru that will hopefully benefit Gray-bellied Comet (reforestation is already underway) and Purple-backed Sunbeam. Amy just informed me of efforts by CONABIO to create voluntary (private) reserves in Mexico for the Sierra Madre Sparrow that may need additional support. Shortly, we will release a request for proposals



Here I send Stuart for the first time a first suggestion for the workflow

Updates

RP Ruben Palacio
To: STUART PIMM <stuartpimm@me.com>
Tue 2019-09-17 8:48 AM




 birds_americas_methods.docx
27 KB

2 attachments (6 MB)  Save all to OneDrive - Duke University  Download all

Hi Stuart, here I send you various updates:

- 1- The methods used on the birds of the americas project so far, including the protocol to produce AOH.
- 2 - An updated figure for producing the AOH.
- 3 - Visualizations of AOH for 110 forest species from Colombia. Download them here: https://drive.google.com/open?id=1MwgSzV5_Rq4NghWtDOrkzZZIn0FIjXZz

Thanks,
R.

 S/MIME isn't supported in this view. To view this message in a new window, click here

SP STUART PIMM <stuartpimm@me.com>
To: Ruben Palacio
Tue 2019-09-17 9:23 AM

Got them, I will get to them quickly.

S

Here I have produced with my workflow maps for more species. I'm still trying to convince him this is important

Area of Habitat birdlife vs our way

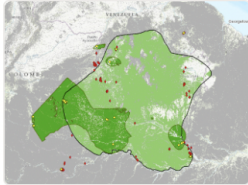


Ruben Palacio

To: STUART PIMM <stuartpimm@me.com>



Thu 2019-10-31 6:51 PM



Hi Stuart, here is a visualization of Area of Habitat for Tawny-tufted Toucanet, obtained from the birdlife range (large black polygon) versus our reproducible way with Inverse distances.

The birdlife range produces an estimate of AOH that is 3 times larger than ours! (673,648 km² vs 228,680 km²). I have this calculations for 742 forest dependent birds in the Americas. The other calculations involve the geographic range size and I have that for a couple thousand species (plus the other metrics like EOO that I have shown you).

I am working to produce more of this visualizations and keep throwing some stats to the data.

Cheers,
R.

So, in the reply below Stuart is finally acknowledging that using occurrence records is important.

Re: Area of Habitat birdlife vs our way

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SP STUART PIMM
To: Ruben Palacio

👍 ↶ ↷ ↸ ⋮
Sat 2019-11-02 6:47 PM

Dear Ruben:

This is a most interesting map. I suspect that there will be many others that will generate comment and criticism when we share them. So, producing them is important, as are the data that come from them. Identifying which maps have the most extreme differences — AOH three times what we predict in this case— and then providing these examples for discussion is going to be vital.

In this case:

1. there are appear to be two points (top right, bottom left) that have no dark green associated with them. Is that because there is but it's too small to see, being next to areas where the species isn't recorded?
2. The occurrence data do expand the range outside the pale green area.

My sense is that this species is sparsely distributed across a huge area of lowland Amazon which is very poorly surveyed. (Much of its range is completely inaccessible.) Birdlife would probably argue that there map is an underestimate and that it should include all its areas and beyond. What your map doesn't show is all the area within the convex polygon of the data points that's within the acceptable elevational and habitat limits, before you trim for absences, right? I think we have to show that and estimate that. That would give us a upper estimate of range to compare to our lower estimate when we remove areas that have absences.

So, yes, looking forward to seeing table of numbers and ways of summarising the data.

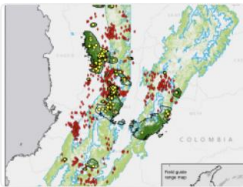
From Japan,
Stuart

I kept producing maps to show him it was worth it to create a new protocol

Yellow-eared Parrot

RP Ruben Palacio
To: STUART PIMM <stuartpimm@me.com>


👍 ↶ ↷ ↸ ⋮
Tue 2019-11-19 5:18 PM



Stuart,

I think I've made a very convincing map! Let me know if you like it!

Best,
R.

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STUART PIMM <stuartpimm@me.com>

To: Ruben Palacio



Thu 2019-11-21 9:47 AM

This is a good map.

You need a couple thousand of them — and tables of summary statistics!

Cheers,

Stuart





 Reply


 Forward


Finally, Stuart is agreeing with me on the necessity to produce a new workflow



Updates on project

 Ruben Palacio
To: STUART PIMM <stuartpimm@me.com>; Amy Uppgren <aupgren@abcbirds.org> +2 others
Fri 2019-12-20 7:29 PM

 BIRDLIFE_RANGES_ACCURAC...
210 KB

 REPRODUCIBLE_VS_IUCN_9.x...
350 KB

 birds_americas_preprint_v1_5...
5 MB

3 attachments (5 MB)  Save all to OneDrive - Duke University  Download all

Dear all,

I am sending quite a few updates on our project, including datasets and maps. I also want to take the opportunity to acknowledge it has taken more time than we anticipated, but for good reasons.

The project was originally conceived to be an extension of refining the ranges the 'usual way' (i.e. Ocampo-penuela et al. 2016) to find birds that were falling through the cracks, so it was mostly going to be a 'map-making exercise' with a more or less reliable schedule. Then, it was realized that the birdlife ranges themselves have a lot of problems, and to find Area of Habitat (AOH) of species useful for conservation, we should improve on previous methods starting from primary biodiversity data and not from the birdlife ranges themselves.

The development of this protocol took me considerable time and effort, and also this semester I had to improve it again. The protocol has changed now from voronoi polygons to using IDW (Inverse Distance Weight) interpolation. After more testing we found the voronoi procedure was very sensible to the spatial location of presences and absences, whereas IDW performs much better (and produces more aesthetically pleasant maps).

The key message right now is that the birdlife ranges are half as accurate as they should be, twice as large as they should be, and thus unreliable for generating AOH estimates (see the ms draft)

Thus, right now the AOH that I can generate for any bird species is much better, and more useful for defining conservation areas etc (I am sending a couple hundred maps).

The other big part of the research has been comparing the IUCN 'official' red list estimates with ones derived from an automated assessment using their very own criteria, but with our much more complete data for each species. Here is also something which would be of interest to ABC, because there are a little over 100 bird species that we deem threatened whereas IUCN says they are not.

So, I wish you all a good holiday, hopefully you would enjoy reading some of the results and looking at the maps, and I will be back on January 7 and maybe we could have a meeting that week.

All the best,
R.

MS:

I am sending a first, rough draft of what the ms would be.

The figures included in the MS so far are here in high-res (power point):

<https://drive.google.com/file/d/1b31C2iufUnRwnF0lUwJQx6mq-aVmXo8T/view?usp=sharing>

MAPS:

[Please refer first to the figure for the Yellow-eared parrot included in the power point and the MS draft]

There are two sets of species: forest birds and non-forest ones. For the forest species, the green layer is the Area of Habitat (AOH). This layer is absent for the non-forest species. The blue layer for all of them is the IDW range refined by elevation (IDW = Inverse Distance Weight). The black outline is the birdlife range.

Two sets of maps

1. Threatened species according to our assessment but considered LC or NT according to IUCN

https://drive.google.com/open?id=1B6RisMMh4dWZutv5Dhne_zp4_3u0mCBY

2. Birdlife ranges with over 70% omission errors (i.e. over 70% of the yellow presence points are outside of the birdlife ranges (in black))

https://drive.google.com/file/d/1PY_YjnTNXWUtBSxuPvSF9MonXBC3kVNY/view?usp=sharing



STUART PIMM <stuartpimm@me.com>

To: Dan Lebbin <dlebbin@abcbirds.org> +2 others

Cc: Ruben Palacio



Sat 2019-12-21 10:05 AM

Dear Dan, David, Amy:

As Ruben explains, we've made a lot of progress in producing maps that we think best summary the state of knowledge about bird distributions. Importantly, they can be batch-produced from eBird data, elevation maps, and forest cover for forest species.

When Ruben made the first examples earlier in the year, we found a Birdlife map that was clearly the right shape and size, but was absolutely not in the right place. In the set of maps enclosed there are more examples like this. There are also examples where the Birdlife maps are far too small and some where they are far too large. Miracles will not cease: some of them are actually OK.

I think the most useful thing you could do is to look at these maps and understand how we produced them and let us know what you like and don't like. Bringing in absences is going to be very controversial. But following the IUCN process of drawing a polygon around all the points, then following the AOH process produces a lot of maps that are not credible.

Clearly, if we can broadly agree that this recipe is sensible, then we can move quickly to map out priority areas — something we are keen to do.

Merry Christmas

Stuart

Note that up to this point there is still no consensus on the steps of the workflow and then I left the lab due to workplace harassment.