

Re: Article: Big-brained birds less likely to migrate

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- *From:* "g" <gillawton@xxxxxxxxxxxxxx>
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"Robert Karl Stonjek" <rstonjek@xxxxxxxxxxxxxx> wrote in message

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> Big-brained birds less likely to migrate

> Michael Hopkin

> Clever species stay put for winter, while others flee.

>

> It takes brains to make it through the winter, at least if you're a bird.

> A

> new survey suggests that bird species that have evolved to fly south for

> the

> coldest months tend to be those that weren't smart enough to survive if

> they

> stayed put.

On-going work with Avida has demonstrated that a digital species will not diversify optimally where the supply of energy (as in food) metabolizable by a species is overly abundant. Avida's first trial version simply supplied everything (digitally speaking) and anything needed by the digital species under observation. Evolution did occur, but very slowly in that environment. Also, that species will not diversify optimally where the amount of metabolizable (by it) energy is too little for it to do more than survive. BETWEEN these limits, however, at what Gould aptly characterizes as the Goldilocks level, optimal diversification occurs. (I am trying to be as brief as possible here, but not leave out bare essentials.)

This being borne out by computer-digital results, then, let us consider what parallel might be found in nature.

There very conceivably could be a seasonal cycle wherein there are times of the year when there is insufficient energy (food, reward, or what have you) to go around but enough for a significant number of individuals (with their own particular energy requirements and metabolic functions) to survive quite easily, while others — if they remain — will not have sufficient food they can metabolize or, if they are able to eat the same food as (in this case) the

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big-brained birds, would bring about their own demise and the big birds' demise, as well.

Migration, in such a frame of reference, would be one of -- but not the ONLY mutationally survivable factor. Only when viewed in the context of the ENTIRE frame of reference is this seen as a single possible move in a far more intricate chess game, as it were.

Even here, I have omitted some qualifications without which the ENTIRE significance of this is remote. Hopefully I have included just enough to make a point without distorting it.

Another ISSUE is that there are many species without big brains that are not merely surviving but, as William Faulkner would have it in his Nobel Prize acceptance speech in 1949, they also PREVAIL.

To be abundantly clear as to what we might imply, or infer, with regard to the survivability (or prevailability) of big-brained creatures, we must not fail to account for the fact they seem on the whole to be fairing poorly in the overall scheme of Earth's general bio-frame, while many small brained (or hardly brained at all) seem to be fairing quite nicely. Annelids, cock roaches, bacteria, certain insects... seem, on the other hand, to be doing very well.

There seems to be a wide-spread assumption that large brains equate to better coping capacity. But, while I must not set out the full argument, the contrary COULD be argued in enormous detail.

Often in reading contributions to sbe, I perceive MANY things to be implied, or hinted at, without being stated.

One can leave things dangling and not contribute any clarity. That is easy. It also can be misleading and defensive... in that, if one begins to have his intended meanings blown out of the water he can deny that was what he meant.

It would help me to understand your intended meaning if you would state it. If, for example, you mean to imply that the large brained birds are "better" or "smarter" in some way evidenced by their not joining in the labor of flying south in the fall... that would seem to me a difficult premise to support. The birds that migrate -- at least prior to incursions by humans upon the geography in which their food supply grows, which has no bearing on the size of their brains -- were doing very well. There is abundant, reliable documentation of the fact that migratory birds literally darkened the skies over many parts of the United States as recently as 100 years ago.

I am not sure on this but believe an issue crying out to be addressed here, also, is one of a species' being able to grow and sustain (energy-wise and metabolically) a large brain NOT requisite

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to, but as a consequence of, having an abundance of available food. I am not going to take that as a stance. I feel confident Avida will bear it out, however. And I fully respect your right -- if you so wish -- to say that Avida is not nature itself.

There are so many issues not clearly set out and considered here, which you have not asserted clearly pro or con, that there is no clear basis as to what might be argued about it. All I can hope to do is suggest some issues that have not been addressed by the above.

In time, I hope to have set out enough issues, FREE OF any argumentative arena, that we might simply refer to them and say, in effect, "What about these...?"

I hope this does not come off as being argumentative against whatever it is you wished to imply, in your own mind.

It is not. It is more of a disclosure, on my part, that there are so many issues not clearly stated in your comments that very little lends itself to being challenged. I have done no more than guess what issues you may have had a stance on... which you might have excellent facts and arguments to support... that just didn't get addressed here. So this is NOT a critique, but just a few observations based on guesses as to your possibly underpinning, but unstated, primary assumptions and/or those of the author of the article referred to.

Let me state an assumption of mine that I believe the designers and upgraders of Avida would agree with:

IF THERE IS A WAY TO EVOLVE A CHARACTERISTIC WITHIN THE CONFINES OF AN EVOLUTIONARY DYNAMIC -- EVEN THOUGH IT BE BUT ONE CHANCE IN A MILLION OF OCCURRING -- AN EVOLVING SPECIES, GIVEN SUFFICIENT TIME AND A CONTINUING PROPENSITY FOR AWARD, THAT CHARACTERISTIC WILL GET TRIED, AND SUCCEED.

I do not pose that for argument but invite you to rip it to shreds if it is wrong.

And, to that, let me add another bold statement of what SEEMS to me to be valid:

THERE IS NO ONE WAY THAT ENERGY CAN BE PRESENT OR AVAILED OF, IN AN ECOLOGICAL DYNAMIC, AND NO ASSURANCE THAT ONE SPECIES OR CHARACTERISTIC MUST WORK TO THE EXCLUSION OF ANOTHER. (This means that if a system supports BOTH some migration and some non-migration, there is no rule of nature -- spoken, written, or tacit but applying -- whereby the one is the "right" or "better," while the other is inferior.) If both

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are working simultaneously and in a way that is interactive or parallel (as over against destructive one of the other), then that is a system which proves both are pragmatically "right," in that context, at that time.

- > The study shows that migratory birds, which leave temperate regions in
- > search of warmer climes when temperatures start to dip, have smaller
- > brains
- > than those who stay behind. Non-migrating species also show more
- > creativity
- > when it comes to finding a meal in the frugal winter months.
- >
- > Daniel Sol of the Independent University of Barcelona in Spain and his
- > colleagues used previous observations of 134 bird species in Europe,
- > Scandinavia and western Russia. They collected data on brain size, and
- > also
- > counted the number of times researchers had spotted the birds adopting a
- > novel feeding technique.

A POSSIBLE argumentive construction of these circumstances could be built upon the supposition that the absence of larger brains in birds that migrate is only HALF of the story. If the migratory birds, by virtue of their having a given amount of energy-metabolic-dynamic allotment (under any circumstances) must cash in a percentage of that energy by way of kinesthetics, while the non-migrating ones do not. I am not unaware of the issue then raised as to why the non-migratory birds "need" larger brains if they stay. If the larger brain enables them to "think up" new and different sources of energy (foods) or "think up" ways to burn less energy (in addition to not flying south) that still does not establish that non-migration is "superior" as an adaptive alternative... but only that it is capable of coexisting with other alternatives.

After all, the human eye, the eye of a fly, the eyes of a sand crab... each is different, yet works as a variation that is "permitted" within the Earth ecology context. Why not, then, BOTH migration and non-migration? And why not even more branchings of evolutionary diversification — and simultaneously?

I am aware of the fact there are far MORE issues here than either of us has addressed yet on this subject.

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- > Full text at Nature
- > <http://www.nature.com/news/2005/050627/full/050627-8.html>
- >
- > Posted by
- > Robert Karl Stonjek

In search of learning and sharing in a desired environment of mutual respect and mutual support,

g

• **Follow-Ups:**

- ◆ **Optimal diversification in Avida**

◇ From: Tim Tyler

• **References:**

- ◆ **Article: Big-brained birds less likely to migrate**

◇ From: Robert Karl Stonjek

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