than because the need for conservation says that it must?

The organizers have yet to make their case fully — after all, the project is still on the drawing board — but the early signs suggest that it is worthwhile. Yes, it is likely to be relatively expensive to accomplish fully, but so is much of modern science on a grand scale. In today's money, the Human Genome Project cost $5 billion, and few people would argue that this was not money well spent. The construction of the Large Hadron Collider, which discovered the Higgs boson, cost about the same amount. (And as Harris Lewin, the organizer of the London launch of the Earth BioGenome Project, provocatively asked: "What has the Higgs boson done for you lately?")

What can genomics do for conservation? Quite a lot, actually, and the vast scope of the project can easily obscure the intensely local insights that might emerge. To point to one small example reported this year, an analysis of 3,095 DNA variations called single nucleotide polymorphisms in the genome of the endangered eastern tiger salamander (*Ambystoma tigrinum*) in Long Island, New York, found that, because roads were restricting the animals' movement between breeding ponds, genetic fragmentation of populations was occurring (E. McCartney-Melsad *et al.* Preprint at bioRxiv http://doi.org/gdcd5x; 2018). The finding highlighted the need for conservation efforts to focus on mitigating this development.

But so far, scientists have just scratched the surface in terms of the diversity of organisms sequenced. And sequencing technologies are only now mature enough to generate high-quality (complete) genomes for in-depth studies. Of the 33,000 genomes in the archives of the US National Center for Biotechnology Information (which represent 0.2% of eukaryotic species diversity), only 50% are of high quality.

Arguably, the highest-quality (and the most expensive) genomes are not strictly necessary for conservation efforts to benefit, but they might reveal the route to new biofuels, drug leads and useful agricultural traits. Finding such applications, and so presenting the conservation of biodiversity as a boon to national economies, local cultures and the environment, should further help governments to take biodiversity issues even more seriously.

Certainly, the need is urgent and the statistics alarming: 50% of current biodiversity could be lost by the end of the century. Earth's sixth great extinction event is firmly under way, and ending this crisis will take much more than DNA sequences. But the Earth BioGenome Project can play a part, and early signs are that it might work.

It is right to seek commitment from participants, by asking them to chip in with money from their own grants. And a good sign is that it's not a top-down monolith. Unlike a typical genome-sequencing project, it has come together as a grass-roots initiative, driven by individuals who study diverse groups of organisms and who are already working to sequence the organisms' DNA. The new project includes ongoing efforts such as i5K (insects), B10K (birds) and the Darwin Tree of Life project, which aims to sequence all of the estimated 66,000 eukaryotic species in the United Kingdom. That suggests the pay-off could come more quickly because many of the genomes are already targeted by research communities keen to process and annotate them.

"Earth's sixth great extinction event is firmly under way."

One looming issue is how easy it will be to transfer samples and genetic data across national borders. A meeting of the United Nations Convention on Biological Diversity (CBD) in Egypt later this month will consider new controls on the sharing of digital genetic data. The proposals would extend the reach of the 2014 Nagoya Protocol, which provides for equitable sharing of the benefits obtained from using genetic resources. If properly implemented, such rules will create greater legal certainty and transparency for the countries that provide such resources and the scientists and companies that use them. They will also help to boost local scientific capacity in the many poorest countries that hold some of the world's richest biodiversity.

Extending the protocol to cover genetic data makes sense, but, if done clumsily, it could create a mess. The CBD has to its credit held extensive consultations with scientists and research institutions likely to be affected. The Earth BioGenome Project could help, by speaking as one voice for researchers. It's better to have one international effort to negotiate solutions for data sharing, instead of a hotchpotch of complex individual and bilateral agreements. And that will help to ensure that the Earth BioGenome Project really does benefit the entire Earth. ■

Note worthy

The Bank of England should put a female scientist on its next £50 note.

What does Marie Curie have in common with the bacteriologist Hideyo Noguchi and the theoretical astrophysicist Victor Ambartsumian? They are among the scientists who have featured on banknotes around the world (respectively, the old 20,000 Polish zloty, the ¥1,000 in Japan and the 100 Armenian dram). Now, the British public has the chance to choose who should join them. Last week, the Bank of England announced that it is looking for an inspirational scientist to appear on the next £50 note. It has invited suggestions and will pass them to a dedicated committee, which will make the final decision and announce it next year.

Scientists and engineers have featured heavily on UK banknotes since the bank started to print historical figures on their reverse sides in 1970. Generations of Britons have been paid with notes depicting Isaac Newton, George Stephenson, Michael Faraday and Florence Nightingale. The designs have not always pleased everyone. The £10 note released in 2000 featured Charles Darwin and his trip on HMS *Beagle*, but also threw in some hummingbirds — which many biologists felt were irrelevant.

Whoever is chosen (the only binding criteria are that they must be British and dead) will replace the steam-engine pioneers Matthew Boulton and James Watt on the £50 note, the highest denomination in circulation. It has yet to feature a woman, and this has led to suggestions that the Bank of England should choose a female scientist. *Nature* agrees. It's true that this would rule out deserving figures such as Alan Turing and Stephen Hawking (who died this year and who bank officials have said would be allowed, even though the bank usually expects banknote candidates to have been dead for at least 20 years). But here is an opportunity to celebrate the hugely important achievements of a woman in science, and to offer an important and inspiring role model at the same time.

A straw poll of some *Nature* staff highlighted some clear possibilities, none of whom will come as a particular surprise to readers. Mary Anning (1799–1847) was a prolific fossil hunter who changed the way we think about the history of life. Ada Lovelace (1815–1852) is credited with producing the first account of a prototype computer and its possible applications. Rosalind Franklin (1920–1958) was an X-ray crystallographer who played a key part in work to establish the structure of DNA. And Dorothy Hodgkin (1910–1994) remains the only British woman to win a science Nobel prize, for her research to unravel the structures of proteins including insulin.

We intend to determine and submit our choice before the 14 December deadline. We welcome the recommendations of readers everywhere as to who they would choose (e-mail: briefing@nature.com). And we encourage you to submit your own nominations at go.nature.com/2jrkt4y. The launch date of the note itself has not yet been confirmed, but it will not appear in circulation before 2020. ■