

Correspondence

Genetic testing can aid pet breeding

Genomics testing offers benefits for pets beyond health improvements (see L. Moses *et al. Nature* 559, 470–472; 2018). It can help breeders to maintain genetic diversity in populations, for example, by probing ancestry or exposing undesirable recessive traits.

The non-profit initiative Harmonization of Genetic Testing for Dogs, developed by the International Partnership for Dogs, now lists around 70 commercial test providers worldwide on its portal. There, users can find details about companies' quality measures and genetic counselling services, for instance (see go.nature.com/2xsgtnd).

Breeding organizations run genomic-selection programmes for a variety of complex traits in livestock. For example, it is possible to select for lower methane emissions and for improved adaptation capabilities (B. J. Hayes *et al. Trends Genet.* 29, 206–214; 2013).

With careful attention to appropriate markers, phenotype characterization, statistical computation and definition of reference populations, genetic testing can guide breeding decisions and strengthen populations (see go.nature.com/2lweoak).

Gregoire Leroy *AgroParisTech, Paris, France.*

Brenda N. Bonnett *International Partnership for Dogs, Sollentuna, Sweden.*

Katariina Mäki *Finnish Kennel Club, Espoo, Finland.*
gregoire.leroy@agroparistech.fr

Biodiversity: broaden valuation

It is a shame that debates on biodiversity policy are much narrower in some countries than those fuelled by the wide range of voices in the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem

Services (IPBES; see *Nature* 560, 423–425; 2018). The United Kingdom, for instance, retains the model of natural science in alliance with economists who specialize in the monetary valuation of 'pieces of natural capital'. The nation must learn from IPBES if it is to address crucial aspects of biodiversity loss.

Economics can contribute much more than techniques and studies of valuation. Changes in land use, the way in which food and energy are produced, and consumer demand for different types of product, for example, can all cause biodiversity loss.

Putting a price on 'natural capital' speaks more to policymakers than to most people's reasons for valuing nature. We need to find a better way to mobilize support for biodiversity conservation — for example, by defining concepts such as services and diversity in terms that are more meaningful to the public.

Many participants in the research network that we coordinate, Debating Nature's Value (see go.nature.com/natval), would like to see UK researchers and policymakers adopt the IPBES approach.

Victor Anderson*, **Aled Jones** *Anglia Ruskin University, Cambridge, UK.*

Rupert Read *University of East Anglia, Norwich, UK.*

*Declares competing interests (see go.nature.com/2rbtcwm for details).

victor.anderson@anglia.ac.uk

Biodiversity: how old is each coinage?

The debate around which framework to use to value biodiversity (see *Nature* 560, 423–425, 2018) could stem from the relatively recent coining and adoption of the concept of nature's contribution to people (NCP; S. Diaz *et al. Science* 359, 270–272; 2018).

Google Scholar returns only 19 hits for NCP and

nearly 100,000 for ecosystem services, mainly because the latter has been in use for much longer. By contrast, this year's summary for policymakers in the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Europe and Central Asia assessment received 115 and 37 hits, respectively. Given that assessments by IPBES synthesize and build on large bodies of existing scientific and other types of information, the discrepancy in the numbers could imply that the two concepts are used interchangeably.

It takes many years of careful work, peer review and weighing of evidence for a conceptual framework to become widely adopted. The term ecosystem services had its breakthrough at the time of the Millennium Ecosystem Assessment, after some 15 years of development. Much effort has since been spent working with governments to mainstream the concept to underpin action.

It will be difficult for academics and governments to adopt a new paradigm without a proper, rigorous test of its utility. We are convinced that the ecosystem services and NCP world views can be reconciled, and ultimately both need to be endorsed. The degradation of ecosystems and loss of biodiversity remain pressing problems however they are conceptualized.

Jim Harris *Cranfield University, Bedfordshire, UK.*

Janne S. Kotiaho *University of Jyväskylä, Finland.*
j.a.harris@cranfield.ac.uk

Overhauling China's electricity sector

China is experimenting with electricity markets to hasten its transition to a clean-energy system. Currently, its annual generation plan allocates roughly the same operational hours to coal power plants irrespective of their cost or

efficiency. Eventually, this will be supplanted by wholesale markets, allowing more-flexible operation of its power system within and across provinces and regions. This is an important step.

The evolution of electricity markets in China will not be swift, painless or linear, thanks to political and economic obstacles as well as entrenched stakeholder interests. But if designed and governed well, markets hold promise for resolving the political challenges that will otherwise frustrate China's transition to a clean-energy system. They can accelerate the replacement of relatively cheap coal-fired energy with renewable energy as the increasing scale of solar and wind installations drives their costs to parity.

Other countries' experiences are useful for reference. But China's electricity markets will ultimately need to develop along a trajectory that is adapted to the nation's particular conditions and challenges. These include long distances between electricity resources and demand centres, the continued need for large-scale investment, the political need for an orderly transition, and China's distinctive approach to governance and regulation.

Markets that allow electricity to be traded and coordinated across regions that cover long distances are likely to be more feasible in China than they have been in the United States or Europe.

Jiang Lin *University of California, Berkeley, USA.*
lin.jiang@berkeley.edu

CONTRIBUTIONS

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