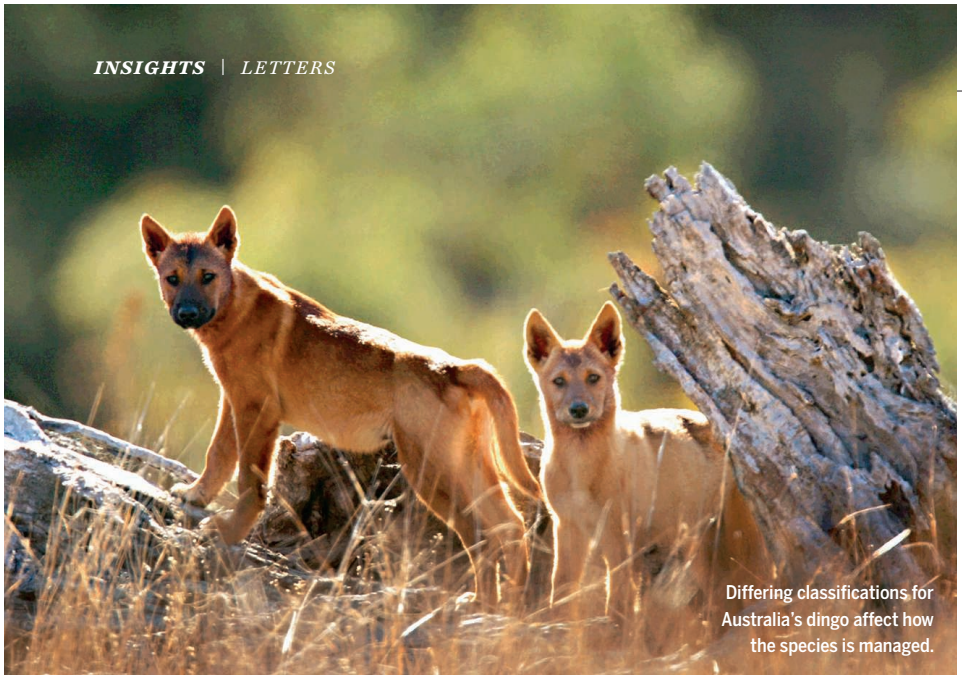

Differing classifications for Australia's dingo affect how the species is managed.

8. J. A. Pasman *et al.*, *Nat. Neurosci.* **21**, 1161 (2018).
9. R. West, *Psychol. Health* **32**, 1018 (2017).
10. T. Effertz, K. Mann, *Eur. Neuropsychopharmacol.* **23**, 742 (2013).
11. A. B. Paaby, M. V. Rockman, *Trends Genet. TIG* **29**, 66 (2013).

10.1126/science.aav3928

Species definitions shape policy

The names we assign to organisms, and why, have important ramifications for our understanding of Earth's diversity and, more practically, how it is managed. For example, wolves, coyotes, domestic dogs, and other canids are often considered distinct (*1*), but their members can, and frequently do, interbreed (*2*). Differing concepts of species—which might take into account morphology, ecology, behavior, genetics, or evolutionary history (*3*)—could describe canids as very few or many species, depending on which concepts are used and how strictly they are applied. Which definition scientists adopt can have political and ecological consequences.

The dingo (*Canis dingo*) has traditionally been considered native in Australia, given evidence of its presence before the year 1400 (*4*) and indications that it has lived in Australia for at least 5000 years (*5*). This designation meant that Western Australia had to have a management strategy in place for the dingo, along with other native fauna. However, a recent paper (*6*) argues that dingoes are in fact *C. familiaris* because they don't satisfy zoological nomenclature protocols nor sufficiently differ genetically or morphologically from other canids, including domestic dogs. The Western Australian government cited this work in justifying its recent decision to declare the dingo a non-native species under the state's Biodiversity Conservation Act (BCA) (*7*). The new order removes the government requirement to manage the species. As a result, dingoes can now be killed anywhere in the state without a BCA license. A potential increase in lethal control of dingoes could have dire consequences for Australia's ecosystems. The dingo is Australia's largest terrestrial top predator [adults typically weigh 15 to 20 kg (*8*)], it fulfils a crucial ecological role, and it has strong cultural significance for Australia's Indigenous people (*8*).

Taxonomy serves a critical purpose for cataloguing and conserving biodiversity, but different interpretations and applications of species concepts can affect management decisions. Policy-makers may use the interpretations that justify their preferred values, such as prioritizing livestock more than biodiversity protection. It is therefore imperative that scientists carefully engage in the policy decision-making process. Scientists must work with policy-makers to convey the multiple dimensions and values that can affect species delineation and make clear the potential consequences of applying such classifications.

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REFERENCES

1. J. Clutton-Brock *et al.*, *Bull. Br. Mus. Nat. Hist. Zool.* **29**, 117 (1976).
2. Z. Fan *et al.*, *Gen. Res.* **26**, 163 (2016).
3. F. E. Zachos, *Mammal Rev.* 10.1111/mam.12121 (2018).
4. Department of the Environment and Energy, Australian Government, "Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)" (1999); www.environment.gov.au/epbc.
5. K. M. Cairns, A. N. Wilton, *Genetica* **144**, 553 (2016).
6. S. M. Jackson *et al.*, *Zootaxa* **4317**, 201 (2017).
7. M. Bamford, "Dingoes to remain classified as non-native wild dogs under reform to Western Australian law," ABC News (2018); www.abc.net.au/news/2018-08-28/dingoes-will-no-longer-be-native-animals-in-western-australia/10172448.
8. M. Letnic *et al.*, *Biol. Rev.* **87**, 390 (2012).

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TECHNICAL COMMENT ABSTRACTS

Comment on "DNA damage is a pervasive cause of sequencing errors, directly confounding variant identification"

Chip Stewart, Ignaty Leshchiner, Julian Hess, Gad Getz

Chen *et al.* (Reports, 17 February 2017, p. 752) highlight an important problem of sequencing artifacts caused by DNA damage at the time of sample processing. However, their manuscript contains several errors that led the authors to incorrect conclusions. Moreover, the same sequencing artifacts were previously described and mitigated in The Cancer Genome Atlas and other published sequencing projects.

Full text: dx.doi.org/10.1126/science.aas9824

Response to Comment on "DNA damage is a pervasive cause of sequencing errors, directly confounding variant identification"

Lixin Chen, Pingfang Liu, Thomas C. Evans Jr., Laurence M. Ettwiller

Following the Comment of Stewart *et al.*, we repeated our analysis on sequencing runs from The Cancer Genome Atlas (TCGA) using their suggested parameters. We found signs of oxidative damage in all sequence contexts and irrespective of the sequencing date, reaffirming that DNA damage affects mutation-calling pipelines in their ability to accurately identify somatic variations.

Full text: dx.doi.org/10.1126/science.aat0958

Comment on "The plateau of human mortality: Demography of longevity pioneers"

H. Beltrán-Sánchez, S. N. Austad, C. E. Finch

Barbi *et al.* (Reports, 29 June 2018, p. 1459) reported that human mortality rate reached a "plateau" after the age of 105, suggesting there may be no limit to human longevity. We show, using their data, that potential life spans cannot increase much beyond the current 122 years unless future biomedical advances alter the intrinsic rate of human aging.

Full text: dx.doi.org/10.1126/science.aav1200

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Euan G. Ritchie, Bradley P. Smith, Lily M. van Eeden and Dale G. Nimmo

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