

Hail Linnaeus

1 “No science in the world is more elevated, more necessary and more useful than economics.” That was the view of Carl Linnaeus, a Swedish naturalist, born three centuries ago, who is better remembered for devising the system used to this day to classify living organisms.

2 Linnaeus sought to reveal what he saw as the divine order of the natural world so that it might be exploited for human benefit. He lived at a time when exploration and trade were bringing new specimens to the attention of European scientists. Those specimens, particularly the plants, were scrutinised as potential crops. At the turn of the 17th century there was no sense of how creatures were related to each other; descriptions and classifications were unsystematic. Linnaeus gave life to an organising hierarchy with kingdoms at the top and species at the bottom.

3 The system he created has proved both robust and flexible. It survived the rise of evolution. It also survived the discovery of whole categories of organism, such as bacteria, that the Swede never suspected existed. But, rather as John Maynard Keynes observed that “there is no subtler, no surer means of overturning the existing basis of society than to debauch the currency”, so Linnaeus's system is being subtly debauched by over-eager taxonomists, trying to help conservation.

Go forth and multiply

4 As new areas are explored, the number of species naturally increases. For



Carl Linnaeus

example, the number of species of monkey, ape and lemur gradually increased until the mid-1960s, when it levelled off. In the mid-1980s, however, it started rising again. Today there are twice as many primate species as there were then. That is not because a new wave of primatologists has emerged, pith-helmeted, from the jungle with hitherto unknown specimens. It is because a lot of established subspecies have been reclassified as species.

5 Perhaps “reclassified” is not quite the right word. “Rebranded” might be closer. Taxonomists do not always get it right first time, of course, and what looked like one species may rightly later be seen as two. But a suspiciously large number of the new species have turned up in the limited group of big, showy animals known somewhat disparagingly as “charismatic megafauna” – in other words the

species that the public, as opposed to the experts, care about.

6 One reason for this taxonomic inflation is that the idea of a species becoming extinct is easy to grasp, and thus easy to make laws about. Subspecies just do not carry as much political clout. The other is that upgrading simultaneously increases the number of rare species (by fragmenting populations) and augments the biodiversity of a piece of habitat and thus its claim for protection.

7 In the short term, this strategy helps conservationists by intensifying the perceived threat of extinction. In the long term, as every economist knows, inflation brings devaluation. Rarity is not merely determined by the number of individuals in a species, it is also about how unusual that species is. If there are only two species of elephant, African and Indian, losing one matters a lot. Subdivide the African population, as some taxonomists propose, and perceptions of scarcity may shift.

8 The trouble is that the idea of what defines a species is a lot more slippery than you might think. Since it is changes in DNA that cause species to evolve apart, looking at DNA should be

a good way to divide the natural world. However, it depends which bit of DNA you look at. The standard technique says, for example, that polar bears are just brown bears that happen to be white. This is not good news for those relying on the Endangered Species Act. For a certain sort of Colorado rodent (with, alas, a nose for prime riverfront real estate) the question of whether it is “Preble’s meadow jumping mouse” or a boring old meadow jumping mouse may be a matter of life or death: local property developers are on the death side. The Bahamas switched overnight from protecting their raccoons to setting up programmes to eradicate them when a look at the genetic evidence showed the animals were common Northern raccoons, not a separate species.

9 The 21st-century answer to this 18th-century riddle is that a species is what a taxonomist says it is. Evolution often fails to produce the clear divisions that human thought in general, and the law in particular, prefers to work with. It therefore behoves taxonomists to be honest. If they debase their currency, it will ultimately become valueless. Linnaeus the economist would have known that instinctively. ■

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Tekst 6 Hail Linnaeus

- 2p **17** Geef van elk van de volgende beweringen aan of deze wel of niet in overeenstemming is met de inhoud van de alinea's 1 en 2.
- 1 Linnaeus' reputation helped to establish economics as a proper science.
 - 2 Linnaeus saw his classification of the natural world as a tool for economic growth.
 - 3 Linnaeus devised his classification system in order to demonstrate his view that man was at the top of the natural hierarchy.
 - 4 Linnaeus' scientific achievements were hardly recognised in his time, when exploration and trade were at the forefront.
- Noteer het nummer van elke bewering, gevolgd door "wel" of "niet".
- 1p **18** Why does the writer quote John Maynard Keynes (paragraph 3)?
To make clear that
- A a well-organised society is founded upon a stable currency.
 - B damage to Linnaeus' classification system would also unbalance society.
 - C just as the monetary system, Linnaeus' system can be subject to inflation.
- 2p **19** Waardoor nam het aantal diersoorten toe tot aan circa 1965, en waardoor nam dit aantal opnieuw toe vanaf circa 1985?
Vul de volgende zin aan:
Tot circa 1965; vanaf circa 1985
- 1p **20** Which of the following is suggested about taxonomists in paragraph 5?
- A They may be allowing their judgement to be influenced by pressure from outside their discipline.
 - B They may be giving preference to animals that are on the verge of extinction.
 - C They may be too confident as to what really constitutes a species.
 - D They may be trying to conceal their past mistakes.
- "upgrading" (halverwege alinea 6)
- 1p **21** Welk verschijnsel wordt hiermee bedoeld?
- 1p **22** What risk do conservationists run with "this strategy" (paragraph 7, first line)?
- A The distinction between species and subspecies might be blurred once and for all.
 - B The public might no longer be responsive to warnings of imminent species extinction.
 - C They might not be able to keep track of the number of elephants in the wild.

- 1p **23** What is the point made in paragraph 8?
- A** Differentiation of species cannot be done by comparing DNA alone.
 - B** Manipulation of DNA test results has made these unreliable.
 - C** Selective interpretation of DNA data may determine whether or not a species is granted protection.
 - D** The natural environment of a species determines the way in which its DNA evolves.
- 1p **24** What does “their currency” (at the end of paragraph 9) refer to?
- A** The endangered species that survive.
 - B** The financial reward of continuing Linnaeus’ work.
 - C** The original concept of species.
 - D** The present-day use of Linnaeus’ classification system.
- 1p **25** Which of the following reflects the message of the article as a whole?
- A** The lack of clarity in the science of taxonomy should not be exploited on opportunist grounds.
 - B** The science of taxonomy as practised by Linnaeus has lost its appeal to self-respecting scientists.
 - C** The science of taxonomy has become unreliable since it started taking evolution into account.

Bronvermelding

Een opsomming van de in dit examen gebruikte bronnen, zoals teksten en afbeeldingen, is te vinden in het bij dit examen behorende correctievoorschrift, dat na afloop van het examen wordt gepubliceerd.