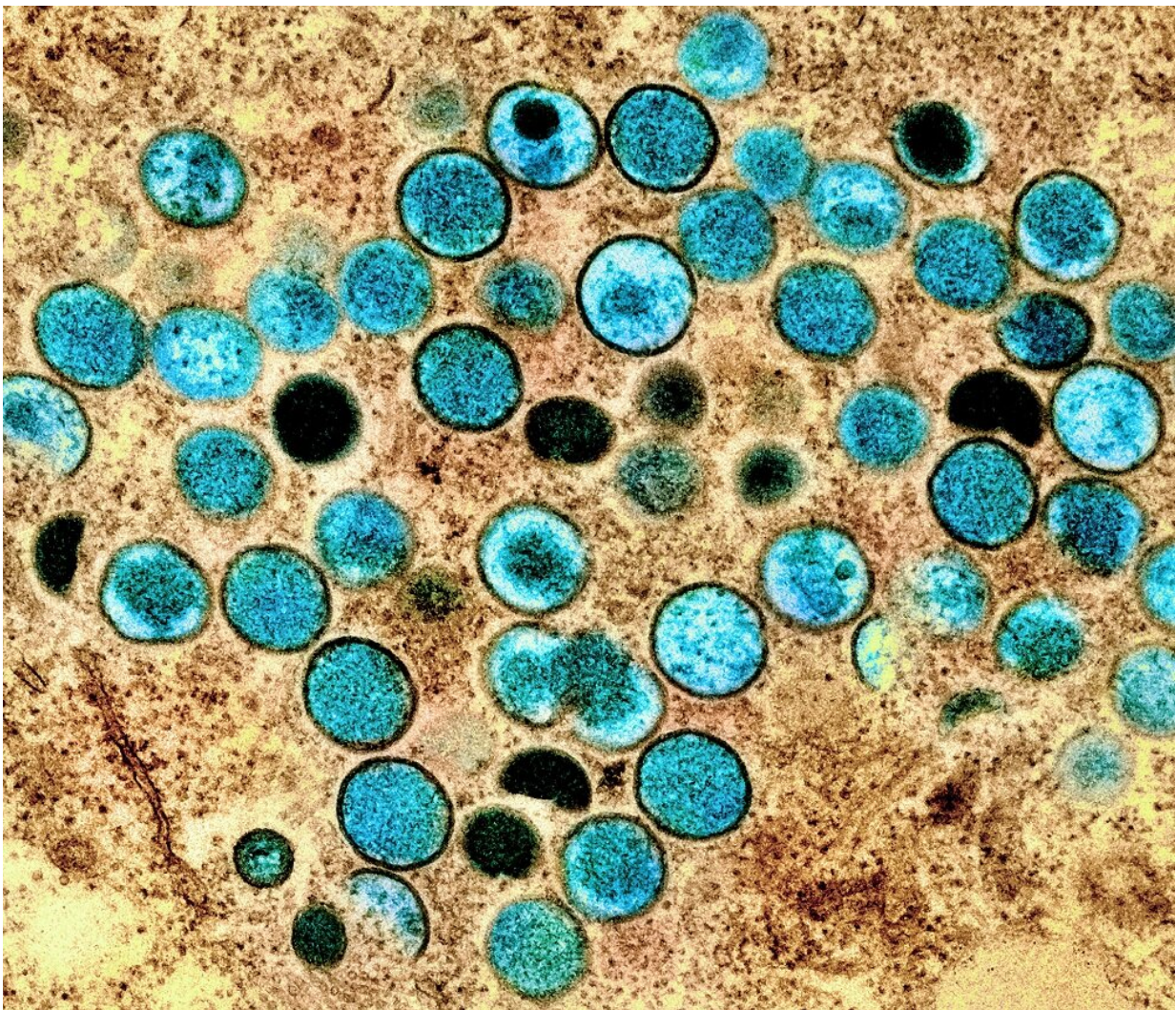


Monkeypox outbreak highlights need for preventative approach to prevent future zoonotic diseases

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Colorized transmission electron micrograph of monkeypox particles (teal) found

within an infected cell (brown), cultured in the laboratory. Image captured and colour-enhanced at the NIAID Integrated Research Facility (IRF) in Fort Detrick, Maryland. Credit: National Institute of Allergy and Infectious Diseases (NIAD).

The current global outbreak of monkeypox is yet another warning for the adoption of a preventative approach to minimize the risk of future emergence of known and unknown zoonotic pathogens, argue Professors Diana Bell and Andrew Cunningham.

The scientists, writing a commentary published in the *CABI One Health* journal, say the world "cannot afford to ignore yet another warning" such as that presented by [monkeypox](#), which has so far seen 62,406 cases in 104 countries and 19 deaths.

According to the World Health Organization (WHO), monkeypox is a viral zoonosis (a virus transmitted to humans from animals) with symptoms similar to those seen in the past in smallpox patients, although it is clinically less severe.

With the eradication of smallpox in 1980 and subsequent cessation of smallpox vaccination, monkeypox has emerged as the most important orthopoxvirus for public health, the WHO states. Monkeypox primarily occurs in central and west Africa, often in proximity to tropical rainforests, and has been increasingly appearing in urban areas. A range of African rodents appear to be the natural animal hosts of the monkeypox virus.

Professor Bell, Professor of Conservation Biology at the University of East Anglia (UEA) and Professor Cunningham, Deputy Director of Science at ZSL's Institute of Zoology, ZSL (Zoological Society of

London), say the unintended consequence of smallpox eradication—and ending the smallpox vaccination campaign—has been to "render the global human population immunologically naïve to orthopoxvirus infection for the first time in history."

Professors Bell and Cunningham, in their commentary, argue, "This has occurred at a time when the majority of people worldwide live in high population densities in cities and when connectivity across the world has never been higher, both of which facilitate the emergence and spread of infectious diseases."

"It is not surprising, therefore, that novel zoonotic orthopoxvirus infections have been increasing in recent years, or that an international outbreak of human monkeypox disease has occurred."

"A One Health approach, including consideration of land-use change and the bushmeat and exotic pet trades, is required to prevent opportunities for the emergence of monkeypox, or diseases caused by other orthopoxviruses, and for a rapid and effective response to any outbreaks in order to limit their spread."

The researchers highlight three examples where monkeypox has pathways to spread and where a One Health approach to its prevention is particularly needed—land use change, the bushmeat trade and the pet trade.

With respect to the bushmeat trade, for instance, Professors Cunningham and Bell suggest that the Gambian giant pouched rat, which is a possible carrier of monkeypox virus, is "commonly eaten due to its relatively large size, and is therefore of particular interest as a potential source of zoonotic infection."

They add that despite extensive legislation banning the import of

threatened taxa, or indeed any wild meat from Africa, significant quantities of bushmeat are smuggled via personal luggage into major European and US cities on passenger flights from West and Central African countries where monkeypox is endemic in wild animals.

With regards to the pet trade, the scientists say that a 2003 outbreak of monkeypox in six U.S. states was traced back to a consignment of 800 live small mammals imported from Ghana to Texas. Virological testing of some of these animals found MPV infection in three dormice, two rope squirrels and at least one Gambian giant pouched rat.

Professors Bell and Cunningham state, "The demand is global with intercontinental smuggling involving South America and Asia as well as Africa and Europe, fueling the biodiversity conservation and ecosystem services crises and escalating the threat of human exposure to known and unknown pathogens harbored by wildlife along trade routes and within destination countries."

They conclude by suggesting that a preventative approach to preventing further zoonotic disease outbreaks could incorporate promoting alternatives to [bushmeat](#), routinely vaccinating people at high risk of exposure and educating people in hygienic procedures such as the wearing of gloves when handling live and dead wild animals.

More information: Monkeypox: we cannot afford to ignore yet another warning, *CABI One Health* (2022). [DOI: 10.1079/cabionehealth20220005](https://doi.org/10.1079/cabionehealth20220005)

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