

The relevance of natural history dioramas for sociocultural issues

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Abstract

Tremendous care is generally taken in the design and construction of natural history dioramas, yet any diorama may be read in a number of ways. In this chapter I review the other chapters in this book and look at the extent to which they take seriously the importance of sociocultural issues for natural history dioramas *and* the importance of natural history dioramas for sociocultural issues. The reality is that dioramas present a distinctive staging of reality. This is not to imply that they are fictional but to acknowledge that their construction (some would say fabrication) results in a dance between the intentions of those who design and construct them, the dioramas themselves and their audiences. This gives dioramas great potential both as tools for education and as tools for cultural reflection and critique.

Keywords

natural history dioramas, sociocultural issues, museums

Sociocultural issues and biology

For much of its history, biology generally saw itself as an objective science, immune (or striving to become immune) to the vicissitudes of culture. Indeed, biologists have often looked towards physics as the ideal science with its allure of precision and elegance – somewhat ironic perhaps, given that 21st century physics, particularly quantum theory and chaos theory, helped reveal the extent to which science is not deterministic.

Despite this, professional biologists have tended to react with incredulity or scorn to attempts by such major authors as Donna Haraway (1989/1992) in her *Primate Visions* to dissect the extent to which biology is affected by society. The reality is that biology – and this is true of natural history dioramas as much as of primatology – inevitably becomes constituted by the values and cultural dimensions of the societies in which it arises and is practised. This is not, of course, to deny that biology has a close relationship to reality but the relationship is not a straightforward, linear one. Society affects biology and biology affects society (Reiss, 2000).

What is true of sociocultural issues and biology is even more true of sociocultural issues and natural history dioramas. The chapters in this volume begin to explore the implications of this. In some cases, notably Doris Ash's chapter, the exploration is explicit and detailed. In others, the exploration is at an earlier stage and more tentative. But this is not a project that will be completed soon. The challenge for those who construct natural history dioramas and for those who use them in education is to engage visitors and to help them learn about biology, about their society, about culture and about themselves.

Natural history dioramas and sociocultural issues

In Chapter 13, Eirini Gkouskou and Sue Dale Tunnicliffe note that visitors come to dioramas for a very wider range of reasons. Using interviews and questionnaires they explored visitor intentions at the Powell Cotton museum in southern England. Perhaps unsurprisingly, and in line with earlier work undertaken by one of the authors (Tunnicliffe, 1995), Gkouskou and Tunnicliffe found that the richest responses to the diorama came from older visitors. Pensioners talked of their memories and how these connected with the dioramas with a number, for example, talking of how the diorama brought back memories of their having lived in or visited Africa.

Maritza Macdonald, Roberta Altman and Jay Holmes in Chapter 14 discuss their collaborative work as museum educators who work at the American Museum of Natural History (AMNH). They present a composite of strategies and assignments for museum-based courses given, over the past five to eight years, to teachers (and those training to be teachers). The course on which they focus in their chapter introduces teachers to use museum-developed resources to supplement their teaching strategies and knowledge of content.

After teachers have done some readings on how learning take place in museums, they are invited to do an open-ended walk through the Hall of North American Mammals at the American Museum of Natural History in New York. Their only directive is to explore the question: “How or why may you use this exhibit with newcomers enrolled in Earth Science courses?”. Initially, some teachers are skeptical about the worth or even the possibility of such activities. Comments such as “Why are we looking at these mammals? I teach kids from all over the world and I need to focus on Earth science concepts and content related to the Earth Science exams in this country”, “My new immigrant city kids will never see these animals or landscapes” and “This would make sense if I was teaching social studies” abound.

Given time, and some gentle questioning from those teaching the course, the tone and content of the teachers’ comments move away from a deficit model towards a more inclusive one, for example “Look at this armadillo, I bet some of my Mexican students will recognize it” and “Are these animals real or stuffed? I think that I would love to have the time to teach kids how to make dioramas. My daughter made one in her private school using shoe boxes”.

Later in the course, the teachers undertake projects with their students. One of the most interdisciplinary projects was *The Travel Agency* in an eighth-grade classroom. The question posed was “Where would you like to travel around the world?”. Each student or small group of students had to identify a place they would like to visit and create a tour brochure. The classroom was filled with samples of commercial brochures for Eco-Tours to many places. One of them was to Costa Rica to save baby turtles. Others focused on the cloud forests and butterflies. There were students from Costa Rica in his class, so the interest was high. They developed a bilingual brochure in English and Spanish. Macdonald’s, Altman’s and Holmes’ interpretation of this is that it depicts an example of place-based learning. Through the lens of place-based education (Grunewald & Smith, 2007) people can become intensely engaged in a place they know intimately or are viewing in a diorama.

As anyone who has lived in or visited Germany knows, the country has unrivalled educational and cultural opportunities. And yet Germany, in common with most other countries, is a nation with considerable disparities in economic, social and cultural capital. In Chapter 15, Eva Neitscher and Hae-Yon Weon-Kettenhofen write about the work they have undertaken in the Museum Koenig in Bonn with children from a primary school in one of the underprivileged districts of the city. Seventy percent of the children at this school come from

migrant families and 30% live in one-parent households. Many of these parents don't speak German and do not know about the cultural opportunities their city offers. They often have to work and therefore cannot spend a lot of time on extracurricular activities with their children. In addition, visiting places of cultural education is often too expensive

A total of 42 children aged seven to 11 visited the museum for twelve afternoons over the course of four months and worked on their cultural, presentation, creative, and communication skills. Among the activities they undertook, they were taken round the research areas of the museum and met the scientists who work there. The children practised working with different scientific tools such as microscopes, magnifiers, tweezers and pipettes. Afterwards, they examined different animals, some alive and moving (e.g. brine shrimps), others dead and preserved (e.g. butterflies and beetles). They were given a dung beetle (*Anoplotrupes stercorosus*) to view under a magnifier. They learned how a scientist would draw and label such a specimen and were then able to practise what they had learned by making their own scientific illustrations.

As part of the project the children built and designed their own 60 cm x 40 cm x 40 cm dioramas. The aim was to transfer the spirit of the existing museum dioramas to their smaller space and to combine their lives with an aspect of nature. The children had to think about what was important to them in their own lives and should be preserved in a museum. Some children chose a special habitat they had seen in the museum, some chose city-scenes and some designed a fantasy world.

An art educator taught them colour-theory, techniques for colour mixing and the handling of different materials and tools. They worked with feathers, cotton wool, sponge rubber, cardboard, pieces of wood and different types of pens and paint. The three-dimensional artwork was made from dough, cardboard, polystyrene and natural materials such as pine cones, wood-pieces, conker and cork. This contributed to an enhancement of the children's fine motor skills and their autonomous creativity. Team spirit was another important aim of the project. As part of this task, the children learned to work collaboratively and deal with failure as a team.

Eventually the dioramas were ready: the subjects included pets they had had, penguins in their natural habitat, jungles, car races through cities, life in the Stone Age compared with today, African animals, underwater worlds, European woods and miniature museums of football or swimming. At the end of the project, the dioramas were presented in an exhibition open to museum visitors for three months. Nearly every child gave a talk in front of the audience at the opening of the exhibition, demonstrating how much their presentation skills had developed and how participation in the project had increased the children's confidence in their own abilities. As Daniel, 10, said, during the opening of the exhibition: "Es entstanden wahre Welten" ("Whole new worlds arose").

There has been little work on why some visitors find dioramas more engaging than do others. What work there has been generally adopts a social constructivist perspective. A very different perspective is taken in Chapter 16 where Paul Gabriel starts by noting that only dinosaurs are more popular than dioramas to the average visitor. Gabriel then argues that we need to take more notice of the diversity that exists in the brains that people have (though some would prefer 'minds' to 'brains' and worry that even this underestimates the importance of group influences on individuals).

Gabriel focuses on three groups of people who between them account for some 15% of individuals (though the figure of 11% he cites for ADHD is for the USA and is an order of magnitude greater than in certain other Western countries, e.g. France): those with dyslexia, those with ADHD (Attention Deficit Hyperactivity Disorder) and those on the autistic spectrum (i.e. with Autistic Spectrum Disorder, ASD). As a case study, he uses a 2006 summative evaluation of the 'Fossil Mysteries' permanent exhibition at the San Diego Natural History Museum conducted by reviewers with dyslexia and/or ADHD. Their insights were complemented by persons on the autistic spectrum responding to museums and dioramas. Gabriel looked at how the reviewers responded to two dioramas within the larger exhibition: an open, noisy, highly interactive area; and a much more quiet, enclosed area.

What these reviewers said worked best were a diorama they called 'The Jungle Room' (formally known as the Eocene diorama) and one they called 'The Dead Dinosaur Room' (the Extinction diorama). In the first, visitors travel through its centre, via a wide, winding walkway, and immediately become immersed in sights and sounds of the scene. The exhibit physically dwarfs the visitor, and bird calls and animal sounds fill the air. At stations placed next to the railings along the pathway, visitors can engage with interactive components inviting them to look more closely at the environment and discover its parts, or to think more deeply about certain aspects of it (Figure 16.1). The second diorama portrays the mass extinctions marking the end of the Jurassic period but counterintuitively is situated in a silent, meditative environment. The lighting is dim, save for strong uses of blue and red evoking the post-meteor crash glow in the sky, and the focus is on a dying creature symbolising the extinction of most of animal and plant life (Figure 16.2).

Both the Jungle Room and the Dead Dinosaur Room powerfully engaged the ADHD and dyslexic reviewers' attention, mostly by creating an immediate non-verbal sense of how everything in the space fitted together. In contrast, the reviewers tended in other parts of the exhibition toward sensory disintegration, meaning that the sights and sounds and spatial layout of a space disaggregated into unrelated pieces, making them difficult to comprehend. Other features that proved successful included a clear pathway in the Jungle Room that helped maintain focus and maintain a sense of direction and purpose, but without being so constraining as to force visitors along a highly restricted pathway, and labels that didn't require too much work to decipher.

In Chapter 17, Annastella Gambini notes that visitor numbers to Italian natural history museums are low. Accordingly, interactive multimedia interfaces called digital dioramas have been developed and can be viewed at www.digitaldiorama.it. To date, four digital dioramas have been completed: Mediterranean Sea, North American River Rapids, Canadian Boreal Forest and Amazon Rainforest.

While scrolling over the main photograph, the user can zoom in to enlarge it. A zoomed image may be viewed from three different perspectives to enable more in-depth examination (which approximates to viewing the diorama close up in the museum). In addition, there is a menu offering four different levels of exploration of the diorama. At each level, a selection of hidden 'hotspots' (generally seven or eight) may be discovered. Each hotspot, placed at a strategic point of the diorama, gives access to more detailed content.

In addition, the project team has begun to develop a new section of the digital diorama site that will launch construction of a database of existing dioramas in museums around the globe,

with a view to fostering the large-scale dissemination of the world's dioramas, comparison among them, familiarisation with faraway dioramas and active on-line exchange initiatives.

Given the huge amount currently being spent on digitising the collections of many natural history museums, Gambini's seems a fitting chapter with which to finish a section on reaching different types of audiences through dioramas. There is little doubt that digital technologies have a very great deal to offer on-line visitors both in terms of learning and of engagement. What we do yet know in much detail is how this potential can be realised.

Luanne Meehitiya, Dawn Sanders and Jill Hohenstein build on earlier work by Sanders and Hohenstein in which they reflected on taxidermy in the light of children's understandings of death. In Chapter 18, they muse on the possible significance of a number of museum displays. They consider, for example, the adult human and child skeleton in the Horniman Museum, London (Figure 18.3). Such skeletons, of course, are very different from the taxidermic and life-like specimens found in natural history dioramas. They suggest that the concept of 'anti-taxidermy' may also be relevant, noting that it has been argued that the plastinated corpses of Gunther von Hagen's hugely popular *Body Worlds* exhibition are acceptable to precisely because they function as a form of anti-taxidermy, removing the skins to show only the anatomical details beneath. Certainly, it is noteworthy how skeletons are generally seen as much more acceptable than stuffed humans. Meehitiya, Sanders and Hohenstein note how it appears that skin is perceived as personal and individual, whereas internal organs and skeletal structure might be seen as universal and considered to be less emotionally confronting.

Human remains are obviously especially likely to cause an emotional response but Meehitiya, Sanders and Hohenstein point out that another display in the Horniman, one of dead dog heads (Figure 18.4) seems likely to incite an emotional reaction for two reasons: first, many of us have dogs for pets; secondly, the fact that only the heads are presented might seem grotesque, creating a sense of disgust.

Meehitiya, Sanders and Hohenstein conclude that taxidermy is liminal. It has strange effects on people, effects influenced by taxidermy itself, display techniques and the memories, knowledge, experience and conversations that individual visitors bring to the museum. Ultimately, there would seem to be a great opportunity for families to engage with the topics of life, living and lifelessness whilst viewing taxidermy displays. These displays provide safe environments to observe real animals close up whilst giving rise to questions about how they came to be in the cabinets in which they now reside. Of course, such displays may also reinforce a fear of discussing death and dying. Researching this will prove challenging because of the intangible and often unconscious nature of reactions to concepts of life and death but there are research avenues available to study.

As Doris Ash notes, her chapter, Chapter 19, treats dioramas somewhat differently than do the other chapters in this book. While natural history museums focus largely on wildlife, they also include cultural exhibits that portray so-called 'primitive,' indigenous, or enslaved peoples and their artifacts. Native Americans and African Americans in the USA and Native Bushmen in South Africa, and others elsewhere, have pointed out that dioramas tend to be static, unchanging, putting the primitive on display and typically portraying them as 'less than' a modern culture, as people frozen in time.

Accordingly, indigenous and other peoples are asking for museum exhibits to change the typical museum presentation in order to reflect issues from their perspective instead of the colonialist, Western, European American viewpoint. Such concerns have resulted in the reconsideration, refurbishing or removal of some dioramas from exhibition galleries.

This has echoes of the 'Rhodes Must Fall' protest movement. Probably the best defence for retaining dioramas that are now seen (at best) to patronise indigenous people or (more often) present a biased view of history is that their retention might allow for critical teaching. However, in the absence of such teaching, their retention is likely simply to promulgate, rather than challenge, stereotypes.

Whether or not one retains older dioramas, more contemporary ones provide an opportunity to re-present events. Ash discusses a number of examples including the representation of slavery in dioramas; some of the earliest representations, dating from around 1820 were designed to show the 'bucolic' life of dancing slaves (sic). Newer museums, such as the Museum of the African Diaspora are designed to represent Black people in historically accurate ways that show the traumatising and suffering experience by slaves.

Of especial interest is a series of dioramas, which featured in the 1907 Jamestown Tercentennial Exposition, held in Norfolk, Virginia. Sadly, these dioramas no longer exist but from contemporary account we know that there were fourteen of them, the first one being titled *Landing of First Twenty Slaves at Jamestown*. It showed 24 two-foot-high plaster figures to indicate the shackled, nearly nude and traumatised Africans who had landed in Jamestown in 1619. In the dioramas, their creator Meta Warrick, who was described as 'a negro aristocrat from Philadelphia', used more than 130 painted plaster figures, model landscapes and backgrounds to give viewers a chronological survey of the African American experience. Scenes ranged from a tableau of a fugitive slave to a depiction of the home life of "the modern, successfully educated, and progressive Negro" (Jackson & Webster Davis, 1908, p. 205). As Brundage (2003) has noted: "Whereas 'Old South' dioramas and such related anthropological exhibits organized by whites *exhibited* blacks, Warrick's dioramas *represented* them" (p.1373).

An oversimplified understanding of nature and its representations might lead one to suppose that dioramas with similar biological content would be similar in different countries. In Chapter 20, Marianne Achiam and Martha Marandino present data to show that this is not the case. The approach they take is to compare two dioramas. One, in the Zoology Museum of the University of São Paulo, Brazil, is part of an exhibition entitled 'Research in Zoology: Biodiversity under the eyes of the zoologist' and shows part of the Amazon rainforest with a number of characteristic species: a jaguar (*Panthera onca*), a harpy eagle (*Harpia harpyja*) eating a macaque monkey (*Macaca* sp.), and an iguana (*Iguana iguana*) (Figure 20.2). The other, the Zoology Museum of the University of Copenhagen, Denmark, part of an exhibition that shows the succession of ecological communities in Denmark, is part of a cluster of exhibits about contemporary Danish fauna and shows a present-day beech forest (*Fagus sylvatica*) with some of its characteristic inhabitants: a roe deer (*Capreolus capreolus*) with two fawns, a chaffinch (*Fringilla coelebs*) and a slug (*Arion ater*) (Figure 20.3). A thorough analysis was then undertaken of the two dioramas using 'think-aloud' sessions, visitor interviews, curator interviews and documentary analysis.

Among Achiam's and Marandino's findings are some that are especially pertinent to the theme of this volume. They argue that the Brazilian diorama encourages a more critical

pedagogy, one that is in tune with the classic work of Paulo Freire (1921-1997), a strong proponent of the view that education should provide learners with the agency and consciousness to critique and address important social issues. As one of the Brazilian exhibition designers explained:

So, the museum has this goal, a more functionalist perspective, to give answers to these questions that are important to the people who live here. What are the situations that we have to fight in the agricultural, medical, and veterinary [areas]?

At least some of the visitors to the Brazilian diorama appreciated this critical turn. As one put it:

Well, the jaguar is a beautiful animal, so I think it already draws attention for that reason. It is an endangered animal, so it has a certain appeal, and being endangered, we begin to think about the degradation of the environment.

In contrast, one of the Danish exhibition designers simply said:

You have an exhibition, you want to show a story about the natural history of Denmark through time, and this being a zoological museum, you want to show the animals.

A number of the visitors to the Danish diorama took it at face value, which Achiam and Marandino see as indicating that they went along with what they held to be its positivist premise. For example, one visitor interpreted the diorama in the following way: “If I was lucky, I could see the animals in this forest here in Denmark”.

In Chapter 21, Henry A. McGhie explores the proposition that natural history museums can play an important role in connecting people and nature, by supporting them to develop their own understanding of nature, to appreciate its value, and to have a positive attitude to their surroundings. At first sight, this seems a somewhat optimistic hope. Aren't such aims more likely to be realised by watching the wonderful nature documentaries that continue to pour forth or by reading great books or articles on conservation and biodiversity, or by getting people out-of-doors so that they experience nature at first hand? McGhie's contention, though, is based on the belief that museums can be a powerful medium for promoting critical thinking and reflexivity, can encourage people's self-knowledge of the world and their place in it, and can promote people's connection with nature.

As is widely known, human effects on the natural environment have been catastrophic for wildlife. In addition, a substantial body of evidence exists on the benefits of contact with nature for people's health and wellbeing. Despite this, people spend less time in nature than they used to. It is precisely because of this that museums and other 'mediated nature' experiences may become increasingly important as sites for environmental education and influencing nature connectedness. Given the far greater awareness of the need for nature conservation and of the role of humans in affecting the natural environment, it is perhaps unsurprising that an increasing number of museums are using their dioramas to communicate such messages.

McGhie concludes that museums provide unrivalled opportunities to help large numbers of people establish or deepen their connection with nature, catalysing mutually beneficial relationships and connections through effective and sensitive engagement and interpretation. Such programmes of activity, he maintains, should be seen as central to museums that seek to

educate and inspire people about the natural world. In order to achieve this, museums need to critique their own practices and communications around the environment and nature, ensure that the messages they use contribute positively towards nature connectedness and support visitors to take positive actions that they wish to take.

Environmental education is widely acknowledged to be of increasing importance. In Chapter 22 Annette Scheersoi and Lara Weiser explore whether natural history dioramas can be effective tools for environmental learning. They hypothesise that museums that contain natural history dioramas can contribute to environmental education and might be even superior to other out-of-school learning environments in regard to such key aspects as interrelationships between animals, animals' needs and habitats, as these can only to a certain extent be presented in zoos or observed in nature. Natural history dioramas, in contrast, offer a scenario with a complete context in a named environment or a constructed representation with key concepts illustrated and represent interactions and relationships between animals and/or plants, illustrate habitat characteristics as well as adaptations and can include human influences.

To investigate these issues, data were collected at a Natural history walk-through diorama in the Koenig Museum (Bonn, Germany), representing the African Savannah. Some time before their study, thieves had broken into this diorama and sawn off and stolen the rhinoceros' horns. However, as the original horns had been taken away before this incident and stored in a museum's safe to protect them from theft, the thieves just took away some copies made from plaster. The museum staff decided not to replace the horns but to present the rhinoceros without horns (Figure 22.3) to create visitor awareness and foster their engagement with conservation concepts. A text label was provided to explain what was going on.

However, only a few visitors spontaneously commented on conservation biology issues; for example, one woman said:

Look, even this rhino does not have any horns anymore. It's because animal welfare activists took many horns off to prevent rhino poaching.

Many visitors seem not to notice the rhinoceros with its horns cut off, perhaps because they do not expect such incidents:

I: "Did you reflect on themes such as human influence on nature or wildlife conservation when you were visiting this diorama?"

V1: "That does not really come up here, because all kind of species are present and human beings cannot be noticed, everything looks really idyllic. If there had been a street or a hut or something man-made, but everything is just like you imagine."

V2: "If they had thrown some Coke cans in here the theme would have been more present. Or birds exposed to oil or something like that. But here everything is very untouched, natural."

V1: "That's what one wants to see I guess."

V2: "Yes, such an idyll, maybe even cliché."

V1: "Indeed, pristine, in a natural state as it should be."

Scheersoi and Weiser concluded that visits to museums with specific habitat dioramas can increase visitors' ecological knowledge and awareness. In addition to explaining scientific facts and environmental problems, dioramas have the potential to connect learners to the natural environment and to evoke emotional reactions. However, specific cues need to be provided in the diorama if visitors are to engage with conservation concepts. It also became

clear that such cues have to be obvious, clear and easy to understand, to avoid any misinterpretations.

In Chapter 23 Keith Dunmall begins with the uncomfortable fact that many of the visitor comments in the Powell-Cotton visitor book are along the lines of ‘no wonder they have gone extinct, he shot them all’. In response to this oft-repeated interpretation, it was decided that the core of a new exhibition would be on extinctions. The IUCN Red List has a hierarchy from those species of *Least Concern* to those that have become *Extinct*. The initial suggestion for the exhibition was the complete covering or removal of the target animals and in the case of removal, replacing them with cut out silhouettes to identify where they had been. After discussion, it was agreed instead to put ribbons around the muzzles of the animals, colour-coded as follows to indicate the status of the animal on the IUCN Red List:

Black	Extinct
Purple	Extinct in the wild
Red	Critically endangered
Orange	Endangered
Yellow	Vulnerable

It was also decided that alongside each of the animal names a symbol would be included to represent which of the following eight key causes were a factor in the animal’s status:

- Climate Change
- Competition with Livestock
- Deforestation
- Disease
- Habitat Loss
- Human Encroachment
- Hunting
- Poaching

It was found that students from the 14 schools that visited the exhibition talked much more about conservation issues than other visitors did before and after the exhibition.

In Chapter 24, Martha Marandino, Juliana Bueno, Marianne Achiam and Carolina Laurini examine data collected at the same two museums as those studied by Marianne Achiam and Martha Marandino in Chapter 20. They were particularly interested in the potential of the dioramas to teach ideas about biodiversity. However, as others have found, it turned out that visitors very much focused at the species level, both in Brazil and in Denmark. Visitors also made comments at the ecosystem level, though not as often as at the species level. However, visitors did not make any comments relations to variation at the levels of individuals, populations or taxa. Comments about conservation were sometimes made but about biogeography and evolution only rarely. As the authors note, the results reveal both the potential and the limitations of dioramas for teaching about biodiversity in museums.

As is well known, most natural history museum dioramas throughout Europe and North America put their emphasis on animals, with artistically painted natural landscapes in the background and life-sized plants in the foreground. A fine example of plant dioramas is provided by the seven life-sized window dioramas depicting different biomes of the United States on display at Botany Hall of the Carnegie Museum of Natural History in Pittsburgh,

Pennsylvania. However, the production of life-size plant dioramas is extremely challenging and time consuming.

Conclusions

Dioramas inevitably reflect the values of those individuals who commission and create them and the societies in which they live and work. The sociocultural perspective to our understanding of dioramas in this volume therefore adds to the educational focus in the companion volume. Looking to the future, dioramas have the potential to make visits to natural history museums both more engaging and more challenging. They can engage with visitors as a play can engage with viewers – there is in both cases a considerable degree of staging. They can challenge because, beautiful as organisms are, many natural museums will want their exhibits to be more than just aesthetically pleasing. Good exhibits can cause viewers to think and to have their assumptions questioned; they can give rise to new lines of deliberation so that visitors leave with fresh perspectives, perspectives that sometimes may be personally troubling.

Together, these two volumes provide a wide range of examples of how dioramas may be interpreted and used. As is generally acknowledged, dioramas are making something of a comeback, and this is to be welcomed. Furthermore, the fact that they so clearly present a staging of reality can prove helpful to our understanding of other natural history displays, and people's reactions to them, where this is just as true – think of displays about evolution (e.g. Scott, 2007) – but may be less evident.

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